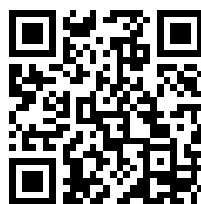
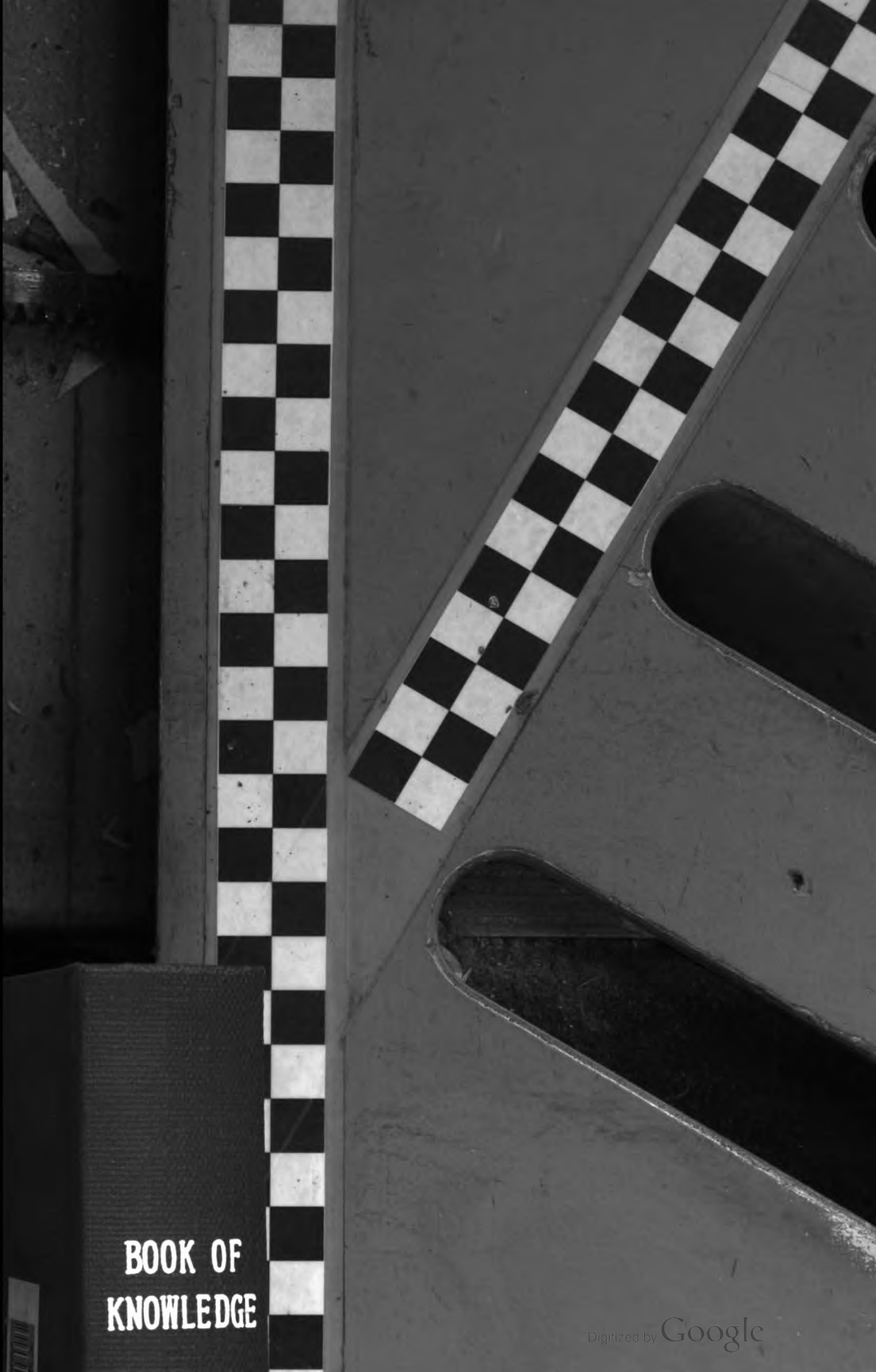

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The Book of Knowledge

The Children's Encyclopædia

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Volume XXIII.

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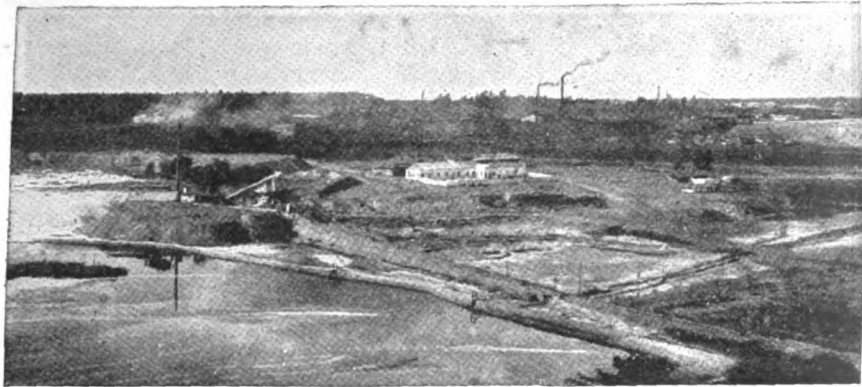


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This is a short guide only to the principal contents of this volume. It is not possible to give the titles of all the Poems and Rhymes, Legends, Problems, colour pages, questions in the Wonder Book, and many other things that come into the volume; but in all cases are given the pages where these parts of our book begin. The full list of these things comes into the big index to the whole work.

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A GENERAL VIEW OF A GOLD MINE

THE EARTH'S HIDDEN TREASURE

CONTINUED FROM PAGE 5100.

"As good as gold," we say when we wish to speak in terms of high praise. We can think of no substance given to us as more valuable than gold. With gold we make the king's crown, and with gold we make the money which keeps the nation over which he rules. Gold will buy anything which is to be sold, because all nations have from the very earliest ages regarded it as the most precious of metals. The possession of gold makes the meanest man powerful; the lack of gold may make a great man weak. By the aid of gold we can do enormous good; by the misuse of gold we may do enormous harm. Men sacrifice their lives in the honest attempt to get gold; men commit grave crimes in the dishonest attempt to get it.

What is this all-powerful metal? Where does it come from? It is a metal dug out of the earth, just as lead, and iron, and tin are. For ages upon ages men called alchemists tried to make this metal, which a child may find in the soil. They spent their own fortunes and the fortunes of other people, and ruined their lives and died heartbroken or mad, in the hopeless attempt to convert less valuable metals into gold. Yet gold was to be had in abundance in the soil of nearly every country. It had been hidden in the earth by Nature, a buried treasure, and may be found

by any diligent seeker, or stumbled upon by the fortunate. We find gold in rivers, in dry land where once rivers ran, and in rocks.

It is not confined to Australia, or to California, or to Africa. We have gold in the rocks of North and South America, and more in the rocks of Alaska. Some day we may find great deposits of gold in Wales. Great quantities of gold have been dug from Welsh rocks in long-past days, and men who understand the subject think that, in course of time, still greater deposits may yet be discovered.

We know where gold is to be discovered; we know of what gold is composed; we know that it is, like iron, and lead, and tin, one of Nature's precious gifts to man. But how it came into the soil and rocks—how it was formed—we do not know. We find gold embedded in rocks which were created in the earth's hot interior, and feel disposed to say, "Oh, all gold has been formed in the fiery heat of the earth's internal furnace." But that will not do. We find gold also in great rocks which have been formed by the seas depositing mass upon mass of sediment.

There is gold floating in the seas around the American coast to-day. Though the work is not very profitable, men make a living by extracting the gold from the waves which wash the

shores of part of Australia. Gold is found in the sands of some of our rivers, and in the water of hot mineral springs. So we cannot say with certainty whether gold came originally from the inside of the earth or from the waters which cover the greater part of the world. Probably some of it comes from the earth, and some from the waters. But, whatever its source, there it is, Nature's surprise-packet for man, a free gift to the lucky and the industrious.

We learn much of the past history of the world in our quest of this rich gift of Nature to man. We find it in the beds of streams and rivers which run far from their original course. It has been washed there, along with masses of material of what once were mountains, worn down by rain, and wind, and frost, and heat. The bulk of the material has been borne away, but gold, being seven times as heavy as the material in which it is contained, has sunk into the beds of the rivers, and remained to be eagerly sought and found by men centuries and centuries after it last moved.

Then we find gold in dry land, where once a river was. Big nuggets are discovered in these places. One, called the "Welcome Nugget," weighing nearly 185 pounds, and worth more than \$50,000, was discovered over

fifty years ago in this way by poor men seeking fortune in South Australia. No such masses of gold as this are found in the rocks. There it is found in veins, and the rocks have to be blasted and crushed to release it.

The strange thing is that gold which has been carried by water in past ages may be found on hill-tops, far from any river. Ages ago, the river carrying the ruins of still older hills, gold and

all, flowed over newer hills, cut down through them, formed a valley, and wore away a course at the foot of the hills, leaving the gold to become embedded in the rocks crowning the peaks, which the water left unhurt.

And then, with the progress of the ages, the rivers have carved entirely new courses for themselves, so that they run now at right angles to their old beds. The search for gold has led to the un-

folding of the earth's history which these chapters from the past reveal so clearly. We do not know where Solomon got his gold, but we know that in ancient days great quantities of gold were used, and we find gold on the coffins of Egyptians buried 400 or 500 years before the Romans—who were great seekers for gold—first went to England. To the ancients it was the most precious of metals, because, to them, the most rare of all. The truth is that gold is not more scarce than copper, tin, and lead; and is *more plentiful* than nickel, cobalt, platinum, and other rare metals. But it has special values. A little of it goes a very long way—in working, just as in spending. A single grain of gold can be beaten into a gold leaf fifty-six inches square, and the gold which the gilders use, called gold leaf, is so thin that 280,000 sheets

of it, laid one above another, measure only an inch in height. Pure gold is nearly as soft as lead, yet a grain of it can be drawn into a wire 500 feet long; while gold wire only sixty-five thousandths of an inch thick will actually hold up a weight of no less than 150 pounds.

A wonderful metal is this gold, which Nature has stored for us so carefully in the rocks, and soil, and sea, and river-beds of practically all countries.

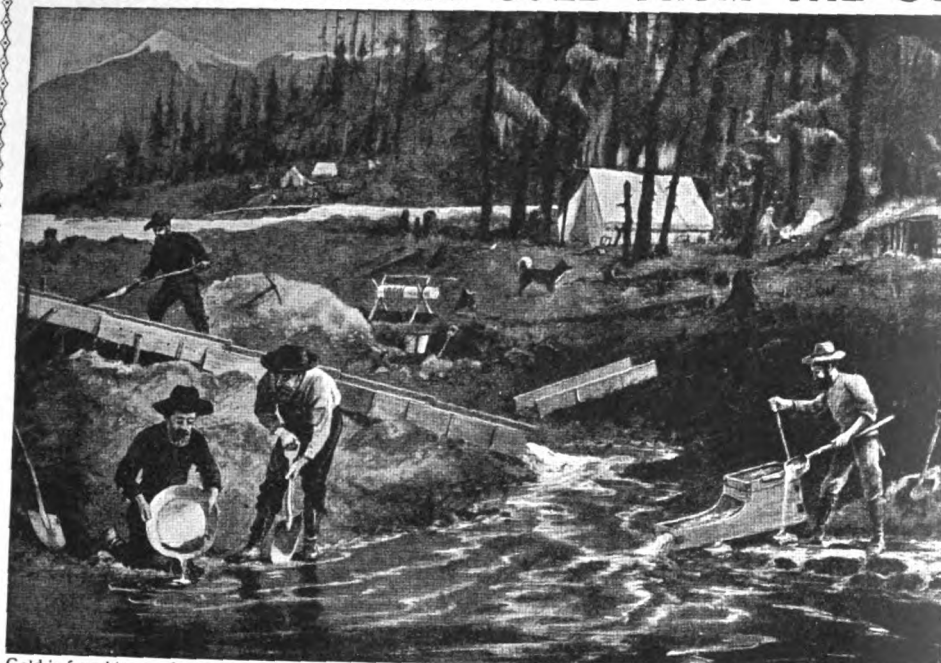


A MAN SEARCHING FOR GOLD

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WASHING OUT THE GOLD FROM THE SOIL

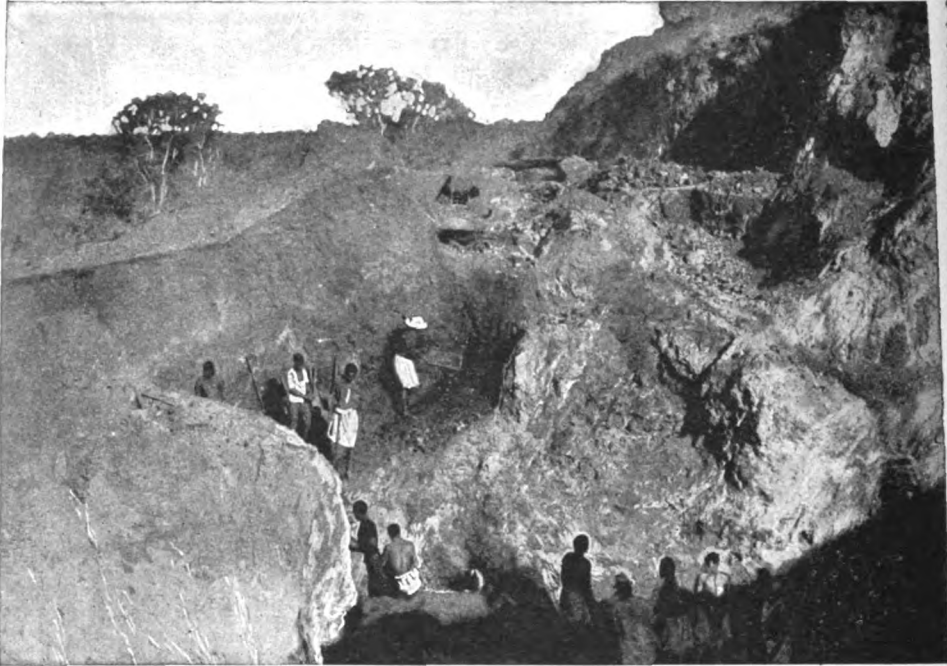


Gold is found in nearly every part of the world, and it is estimated that during the last four centuries gold worth nearly ten thousand million dollars has been obtained from the earth. Some has been dug out of mines and some washed out of the soil. The simplest way of getting gold is shown here. One digger is washing the gold-bearing soil in a pan, so that the heavy grains of gold may sink and be collected, while another miner is washing out the gold in a "cradle." The rough wooden trough is called a sluice-box, and is for washing gold on a larger scale.



The washing of the gold from the surface-soil in which it is found is now done by machinery and is called piping, or hydraulicking. Great jets of water are played upon the soil, as shown in this picture, and the water washes the earth or gravel away, leaving the gold grains behind. Much gold, however, is washed away and wasted by this process. Some of these surface goldfields are very rich. In three years, the Californian goldfields produced gold worth 180 million dollars, and in an equal period the Australian fields produced no less than 300 millions.

AN OPEN WORKING AND A DEEP MINE



Besides being found very near the surface, where it can be washed out, as we see on page 5299, and deep down so that a shaft has to be sunk, gold is also found a few feet below the surface, as shown here, when it is known as an open working. It is interesting to realise that many towns in South Africa, America, Australia, and New Zealand would never have been in existence to-day but for the discovery of gold in the districts where they have been built.



It has been estimated that from the time when gold was first discovered in South Africa, until the time when it shall all have been taken out of the earth, the total value of precious metal extracted will be about 75 hundred million dollars. Most of this will have come from underground workings like the one we see here, and in years to come this vast mining district will be like a giant honeycomb. Some workings are a mile below the surface.

DEEP MINE

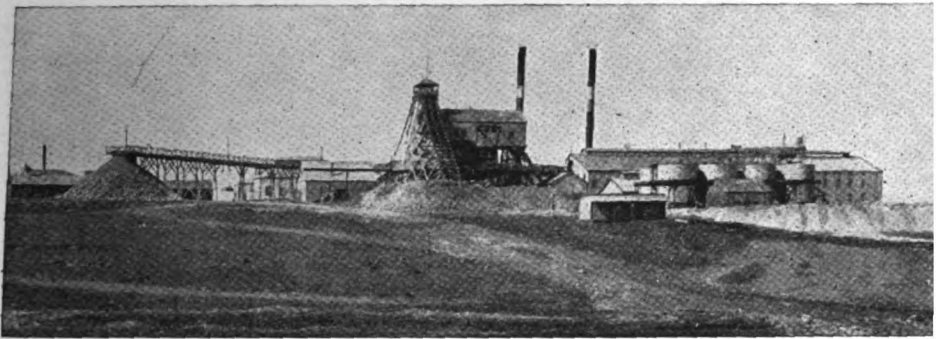


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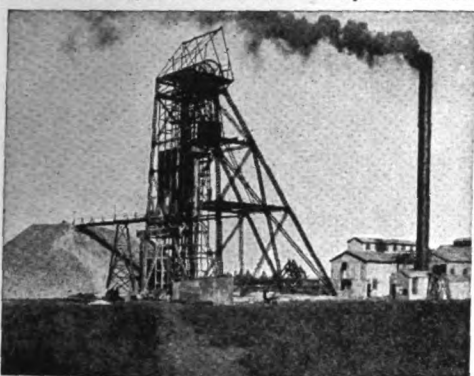


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WHAT THE TOP OF A GOLD MINE IS LIKE



The gold-bearing soil is really gold ore that in the course of centuries has been broken up by the weather. When the gold is all washed out of this, if the rock below has veins of gold or contains rich ore, mines are sunk and the ore is brought to the surface. This picture shows us the great works built at the surface of a gold mine.



The tower-like structure built over the shaft of a gold mine contains the machinery for lowering the miners and raising the ore. When the ore is brought to the surface it is crushed, and then the gold is washed out.



In this picture of the top of a South African gold mine we see the rush of water from the works, where it has been used in separating the gold from the crushed mineral. A good water supply is essential in gold-mining.



This is another view of the works at the top of a large gold mine. Very large nuggets of gold are never found in the veins of mines, but only in surface beds, and some think that here in the course of ages they have grown large by gradually attaching to themselves smaller fragments. The largest nugget ever found was the Welcome Nugget, discovered in 1858 at Ballarat, in Australia. It weighed 2,217 ounces, and was sold for \$52,000.

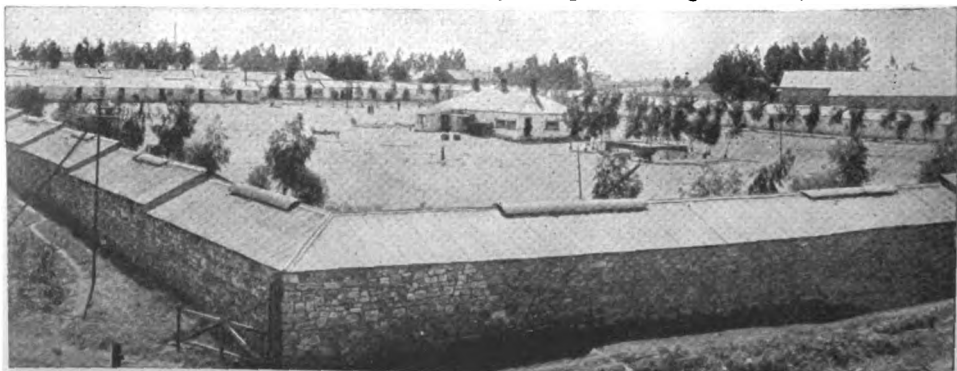
THE MEN WHO DIG FOR THE GOLD



Here we see the little homes, or bungalows, where the engineers and other white men employed at a big gold mine live. These bungalows are strongly built. When, however, gold is first discovered in a new district, miles away from any houses, the miners who rush to the spot have to sleep in very rough sheds or in the open air.

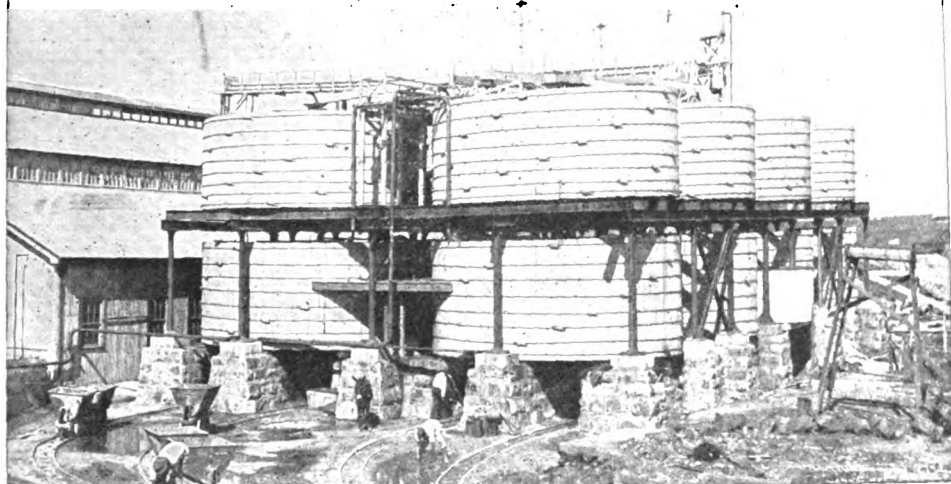


In the South African gold mines nearly all the digging underground is done by Kaffirs. Although, as we can see from the photograph, they are mostly grown up, they are always called "boys" by the white men in authority over them, whatever age they may be. These black men wear very scanty clothing when working in the mines, which are very hot.

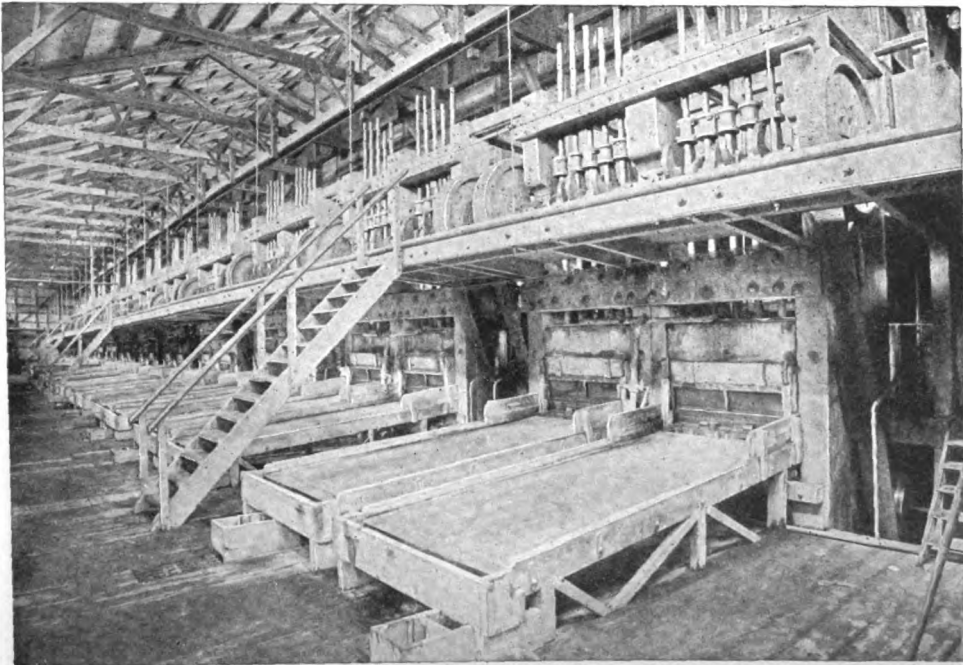


The black men, or Kaffir "boys," all live in a place by themselves, which is called a compound. The houses are built in the form of a square or oblong, while the space in the centre is left open, as we see here. Many thousands of Kaffir boys are employed digging for gold in South Africa, and, when properly looked after, they make good workmen.

SEPARATING THE GOLD FROM THE ORE

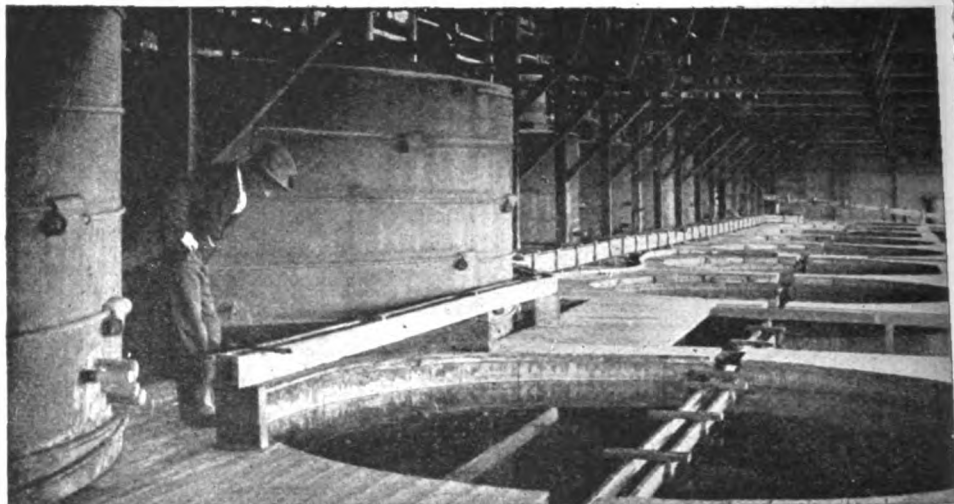


Nearly twenty years ago two men invented a new process for obtaining the gold from minerals in which there were only very small quantities, and this process is now used in nearly all the South African mines. It is known as the cyanide process. The finely crushed ores and other materials are put into large vats, like the ones seen in this picture, with a poisonous chemical called potassium cyanide, which is used a great deal in photography. The chemical acts upon the ore and separates the gold from the other substances so that it can be easily collected.

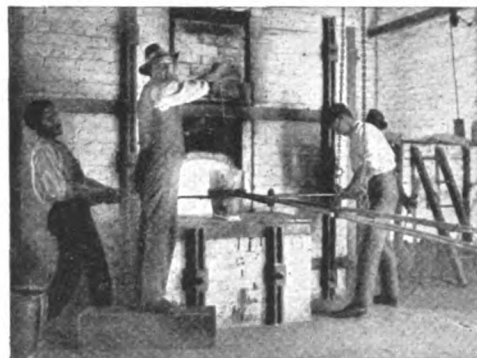


The rock containing the gold is very hard as it comes from the mine, and after being crushed into small pieces it is reduced to the finest powder by machines called stamps. Here we see some of these stamping-machines. Iron hammers strike the ore with great force and crush it. The powder is then passed through a fine sieve and the gold collected. The hammers weigh nearly half a ton each, and strike ninety blows a minute.

THE GOLD LEAVES THE MINE FOR THE MINT



More than \$150,000,000 worth of gold is now produced from the South African gold mines in a year, and to obtain this from the hard ore very expensive machinery is needed. In this picture we see what are known as precipitating vats, in which, by a chemical process, the gold is separated and collected. Of course, there are many other operations which the ore has to go through before the gold is actually set free and ready for use.



Here we see the smelting-room of a mine. Smelting, which simply means melting, is another method of extracting the gold from the ore that contains it.



This picture shows the chemists of a gold mine assaying, or discovering by chemical tests, the proportion of gold that exists in a particular kind of ore.



When the gold leaves the mine for the Mint it often starts on its journey in mule waggon. The amount of gold found in mines and goldfields all over the world each year is worth about \$440,000,000, and more than half of this amount is obtained in the British Empire, a fact which has partly helped to make England such a very rich country.

The photographs on these pages are by H. W. Nicholls, Underwood & Underwood, London, and the Consolidated Gold Fields of South Africa. THE NEXT STORY OF FAMILIAR THINGS BEGINS ON PAGE 5371.



THE STORIES OF VICTOR HUGO

CONTINUED FROM PAGE 523.

No poet ever loved children more than the great Frenchman, Victor Hugo. One of his most famous works, "The Art of Being a Grandfather," was written out of love for his pretty little granddaughter, Jeanne. Jeanne was charming, sprightly, and full of mischief, and her grandfather was her humble slave. A grave senator, coming to consult the poet on some matter of state, found him crawling about the room, with Jeanne and her little brother Georges riding on his back.

"Now, grandpapa," Jeanne said, when she was tired of play, "sit down and tell us a nice story."

"It is very difficult to make up stories," grandpapa replied.

"Not for you," said Jeanne, nestling up to him. "You have written lots of tales, but tell us a tale that isn't in your books, darling grandpapa." And Jeanne and Georges curled up cosily at his feet, and he began to relate the marvellous new story of

THE GOOD FLEA AND THE BAD KING

THERE was once a very wicked king who made all his people unhappy. But they could not send him away, because he was extremely rich, and kept a great army to protect himself.

Every morning he woke up even more wicked than he was the night before, and at last this came to the ears of a little flea, who was full of kind feelings. All fleas are not like

this, but this flea had been well brought up. She never bit people except when she was really hungry, and even then she was careful not to hurt them.

"It would be a dangerous task to bring this king to his senses," said the little flea; "but still I will try."

That night, as the king was quietly going off to sleep, he felt something like the prick of a needle.

"Oh, what's that?" he groaned.

"A little flea who intends to correct you," was the answer.

"A flea? Just wait. I will see to this!"

Jumping furiously out of bed, the king shook all his bed-clothes. But he could not find the flea, and for a very good reason. She had hidden herself in his beard.

He went back to bed, thinking he had frightened her away. As soon as his head was on the pillow, out hopped the flea, and bit him again.

"You dare to return, you abominable little insect!" he cried.

"You are scarcely as large as a grain of sand, and you attack the greatest king in the world!"

The flea did not trouble to reply, but went on biting him. The king did not get a wink of sleep all night, and he rose up next morning in a very bad humour. He had his palace cleaned out from top to bottom, and twenty learned men

with great microscopes examined his bedroom and everything in it. But they did not discover the flea, as she was hidden under the collar of the coat that the king was wearing. That evening the king went to bed very early, as he felt he must have a good sleep.

"Who's that?" he shieked, feeling a fierce bite.

"The flea!"

"What do you want?"

"I want you to obey me, and make your people happy."

"Where are my soldiers? Where are my generals, my Ministers?" screamed the king. "Tell them to come at once!"

In they all rushed to the royal bedroom. They pulled the bed to pieces, they stripped the paper from the walls, they tore up the floor, but the little flea nestled safely in the king's hair. He ran into another room, and tried to sleep there, but the flea skipped out and bit him, and kept him awake. In the morning the furious king issued a proclamation against all fleas, in which he commanded his subjects to exterminate them with the utmost speed. But he could not escape from the valiant little insect that was attacking him. His own body became black and blue with bruises from the blows he struck in a vain attempt to crush his tiny tormentor. He grew thin and white with sleeplessness, and he would certainly have died if he had not at last agreed to obey the flea.

"I give in," he moaned, as she again began to bite him. "I will do whatever you want. What is it?"

"You must make your people happy," said the flea.

"How shall I do that?" asked the king.

"By leaving the country at once," said the flea.

"Can I take some of my wealth with me?" the king humbly asked.

"No!" exclaimed the flea.

But the little flea was not too severe. he allowed the wicked king to fill his

pockets with gold before he went away, and the people formed themselves into a republic, and governed themselves, and became very, very happy indeed.

Both Jeanne and Georges were greatly amused by this funny story, because grandpapa pretended to be the wicked king that was being tormented by the good little flea. He rolled about in his chair with such comical movements that the children shook with laughter. Pleased with the effect he had made, Victor Hugo went on to tell the very wonderful tale about

THE UGLY DOG THAT BECAME AN ANGEL

THERE was a very good dog, whose name I can't remember, but he was an excellent dog. I should have liked to be his friend. Unhappily, he was very

ugly, and he seldom washed himself. This was really the fault of his master, a wicked little boy, who used to ill-treat him. One day this boy went to a deep lake to play at ducks and drakes. You know the game? He had a pocketful of stones, and he threw them along the surface of the lake, and tried to make them touch the water three or four times. The dog sat at a distance, watching him. All of a sudden, splash!—the boy slipped down the muddy edge of the lake, and



THE LEARNED MEN EXAMINED THE ROOM

sank. Just as he was drowning the dog jumped in after him, and, seizing him by the coat, brought him safely ashore. But the wicked boy was angry because the brave, good dog had torn his coat just a little in dragging him out of the water. So he sent the faithful animal into the lake again to fetch his cap, and then threw stones at him, and almost made him sink.

A hungry, fierce wolf saw what had happened. He thought that the poor dog would be glad to get rid of such a bad and ungrateful master. Creeping up, he whispered to the dog:

"Let me eat him up!"

But the dog pretended to be deaf in that ear. The wolf at last got tired of

THE STORIES OF VICTOR HUGO

talking, and sprang at the boy; but the good dog closed with him, and after a hard struggle he drove the wolf away. The wicked little boy was hiding behind a bush, holding a great stick in his hand.

The good dog ran up to him, full of the joy of victory, but the boy cried in an angry voice:

"Go away, you ugly thing! Why did you frighten me by fighting with that dreadful wolf? You quarrelsome brute!"

And he beat the poor dog, and chased him away by throwing stones.

But the poor dog still faithfully followed his wicked little master. The boy climbed into an orchard to steal some apples. He knew that the orchard belonged to a cruel farmer, who had no mercy on thieves; but he thought that the man was away marketing. The wicked boy began picking the apples and pelting the poor dog with those that he found unripe. Suddenly the cruel farmer ran out with a gun, and pointed it at the wicked boy.

"Pay me at once for my apples," said the farmer, "or I shall shoot you!"

The wicked little boy had not a penny in his pocket. Giving himself up for lost, he shrieked in terror:

"Help me, my dog! Help me!"

Dogs, you know, cannot climb up trees. But this wonderful dog could. He seemed to bounce up the trunk like an



THE BOY WAS HIDING

animal made out of indiarubber, and, gripping the branches with his teeth, he got on to his master and protected him. Just as the cruel farmer fired his gun. The shots entered the poor, brave dog's body. He turned his dying eyes toward the wicked little boy, to implore his help. But the boy was already a long way off. He was running away through the fields, like the thief that he was. But this is what the farmer saw with his own eyes. The smoke from the gun drifted round the dying dog, and seemed to transform him. The faithful creature was no longer dirty and ill-kept, but beautiful and shining with a glorious light. His face took on

a heavenly expression, and lovely wings grew out of his back. There was a sound like thunder, and then the farmer saw the dog rise up in the air, and vanish above the highest clouds. There was another angel wanted in heaven that day, and no creature had been found anywhere on earth as good as the poor, ugly dog.

"What became of the wicked, wicked boy?" said Jeanne, who had been boiling over with indignation at his treatment of the good dog.

"He continued to be wicked," said her grandfather, "but he was very cruelly punished for it. *Nobody ever loved him.*"

THE MAN WHO KNOCKED AT THE GATES

LONG ago in India there lived a holy man. For seven years this good man performed many kind works. At the end of that time he mounted the three steps that took him to the doors of Paradise, and knocked loudly till he heard a voice. And the voice said:

"Who is it that knocks?"

"It is your servant, Lord, who seeks entrance!" replied the holy man.

But there was no answer, and the gates remained closed.

Then the man went away, and performed many other good deeds, and for seven years lived a beautiful life working for others. At the end of that time he once more mounted the three steps, and tapped loudly at the portals of heaven.

Again a voice cried out from within:

"Who is it that knocks?"

"It is thy slave, O God!" he replied. But the doors never moved.

"Ah," thought the holy man, "I have been selfish. I must not think of myself. In future I will do good for its own sake."

So he went away, and for seven more long and weary years he strove to live a noble life, and his selfishness completely vanished. At the end of those seven years of toil he went up the three steps leading to Paradise, and knocked gently.

And he heard the voice, which said:

"Who knocks there?"

And he answered:

"It is your child, my Father."

And the gates opened, and he walked in.

STORIES TOLD IN THE MIDDLE AGES

LITTLE TALES FROM A BOOK THAT SHAKESPEARE READ

The most famous story-book of the Middle Ages was a book written in Latin, called the "Gesta Romanorum," which means, "The Exploits of the Romans." The book received this name because many of the stories were told about real or imaginary emperors of Rome. There are about two hundred stories altogether, and most of them are weak in incident and dramatic power; but it was in the "Gesta Romanorum" that Chaucer, Shakespeare, and other famous poets found many of their plots. Here are some of the more interesting stories.

THE SON WHO DID HIS DUTY

A CERTAIN soldier went on a long journey, leaving his wife and son at home. In a distant land the soldier was made a prisoner, and kept in close confinement, but he was able to write to his wife and son telling them of his fate, and asking them to do all they possibly could to collect a sum of money to pay for his release.

The wife was so distressed at the sad news, and wept so much, that she became blind; and the son was then in great trouble, for he knew not what to do. He was anxious to fly to his father's help, but at the same time he could not bear the thought of leaving his blind mother alone while he was away.

After thinking over the matter for some time, he at last determined to go to release his father; but first of all he made careful arrangements for his mother to live among friends, and be properly cared for during his absence. Then he travelled to his imprisoned father, obtained his release, and the family were once again united and happy, and the mother gradually recovered her sight.

THE DOGS THAT BECAME FRIENDS

THERE was a king who had two greyhounds, and these were kept chained up at some distance from one another. But directly they were let loose they flew at each other, and began to fight most fiercely. The king consulted one of his wise men as to what could be done to make the dogs live together as friends.

"Take them into the forest," said the wise man, "and when you see a fierce wolf or a wild boar, let one of the dogs loose. The wild animal will attack it. But just as it is being overcome, let loose the other dog, which will fly at the boar or wolf, and the two dogs together will be

more than a match for the wild animal." The king did this. A wolf appeared, and one dog was let loose. When its strength had nearly failed, the other was let loose, and the fierce wolf was slain. The first dog was so grateful to its companion for saving its life that ever after the two animals were faithful friends.

ALEXANDER AND THE PIRATE

A SEAMAN named Diomedes for a long time sailed the seas in a galley, attacking the shipping, plundering the cargoes, and sinking the vessels. At last he was captured and brought before Alexander the Great, who asked angrily how he dared to trouble the seas as he had done.

"Sire," said he, "ask rather how you dare to trouble the earth. I am master of only a single galley, and do but little harm, while you are master of great fleets, and carry desolation and war. Yet I am called a robber, and you are a king and conqueror. Did fortune but change, and I became more successful while you became less successful, our positions might be reversed."

This argument so struck the king that he made the pirate a wealthy prince, on condition that he should give up his life of robbery and become an honest man.

THE CONQUEROR'S TRIUMPH

A CERTAIN king, after a great victory, appointed three honours for his successful general. He decreed that the victor should be greeted with loud hurrahs, that he should enter the capital in a triumphal car drawn by four white horses, and that the captives should follow the conqueror's chariot, bound hand and foot.

The general was delighted at hearing this. But when the time came for the honours to be enjoyed, he found that the emperor, in order to keep him humble amid success, had appointed also three annoyances which would accompany the honours.

First of all, a slave rode by his side in the triumphal chariot, to remind him that even the poorest and least of mankind could attain to a position such as his; in the second place, the slave struck him a blow whenever the people cheered, so that his pride might be checked; and, in the third place, the

people were allowed free licence to shout the most insulting remarks while the victor enjoyed his triumph, so that he might be reminded of his weak points.

THE GUESTS AT THE FEAST

A GREAT king made a feast, and invited everyone to it. He sent out messengers to all the cities and towns in his kingdom, asking the people to come, and promising not only food, but wealth.

In one town there was a strong, robust man, who, unfortunately, was blind; and he loudly bemoaned the fact that

his affliction would prevent him accepting the king's invitation. But presently he heard that in the same town was a lame man, who was also grieving that he would be unable to go to the feast.

The blind man and the lame man, therefore, came to an arrangement by which the blind man would carry the lame man to the feast, the lame man directing him. So the man who had sight but could not walk guided the man who could walk but could not see, and the two went together to the king's feast.

HOWLEGLASS, THE MERRY JESTER

The "History of Howleglass" is a famous German book of stories which was written in the Middle Ages, and was very popular in England in the reign of Queen Elizabeth. Howleglass is a merry rascal who travels about a great deal, and wherever he goes he plays pranks that makes people very angry at first, but afterwards cause them great amusement. The following are some of his adventures:

THE DINNER AT THE CASTLE

HOWLEGLASS at one time enlisted in the service of the Count of Ambal, whose castle was surrounded by enemies. Howleglass was placed in the watch-tower, and told to keep a sharp look-out and to blow a horn if he saw the enemy approaching.

Shortly afterwards he heard the count and his chief officers go into the great hall to dinner, and the smell of the dishes was too much for Howleglass. So he gave a great blast on his horn, and while the count and all his men ran off in great alarm to their posts to withstand the enemy, Howleglass rushed down and ate his fill of the victuals provided.

THE THREE GREAT QUESTIONS

ARRIVING at Prague, Howleglass posted a notice on the doors of the churches to the effect that he would answer any questions that might be asked of him, however difficult they might be. He was taken to the university and questioned by the rector before all the students, who had gathered to hear the visitor.

"How much water is there in the sea?" asked the rector.

"Stop the tides," said Howleglass, "and I will measure it for you."

The rector said he was unable to do that, and asked a second question.

"How many days have passed away since Adam was alive?" said he.

"Seven," answered Howleglass with-

out hesitation, "for when seven have passed, seven begin again, and so it goes on to the end of time."

"Where is the centre of the world?" asked the rector.

"Why, this house, to be sure," replied Howleglass. "Measure the world with a long cord and you will find I am right to an inch."

"How far is it from earth to heaven?" said the rector.

"Very near indeed," answered Howleglass, "for when we pray ever so low on earth, it is surely heard in heaven."

"But how large is heaven?" questioned the rector.

"Just twenty thousand leagues," replied Howleglass; "and if you doubt me, go and measure it, including the sun and moon and stars."

At this point the rector had to own that he could ask no question to which Howleglass had not an excellent answer.

THE WONDERFUL HORSE

HOWLEGLASS, on his travels, arrived at the city of Halberstadt, and lodged at the best inn he could find. Soon his money was exhausted, and in order to get more he asked the town-crier to advertise a wonderful show that would be open to the people on the following day.

"Come," he said, "and see the strangest horse that ever lived. Its tail is where its head should be."

The people flocked in hundreds to see this strange animal, but on entering the stable where it was kept they found an ordinary horse with its tail tied fast to the manger.

The folk could not help laughing at the way they had been hoaxed, and Howleglass made them promise as they left that they would not reveal the secret to those who had yet to come in.

THE ADVENTURES OF REYNARD THE FOX

Nobody knows who wrote "The Adventures of Reynard the Fox." They are about a thousand years old, and are found among the ancient literature of many countries. Reynard is an artful knave, who deserves to be punished for all his evil deeds, but somehow manages to escape every time. The stories were written as parables—that is to say, as stories with an inner meaning—and they were meant to point out the evils of rulers and priests in the days when men dared not write openly of such things.

REYNARD IS SUMMONED TO COURT

SIR TIBERT the Cat was sent by King Lion to summon Reynard the Fox to appear at court, there to answer for all his offences. At first the



REYNARD SHOWED SIR TIBERT THE HOLE

cat did not want to go for fear that some evil should overtake him, but at last he was persuaded, and he set out.

When he arrived at Reynard's castle, the fox promised to return with him to the court. "But," said the fox, "you must remain for the night, and to-morrow we will travel together." Sir Tibert agreed to this. Then the fox began to lay the table for a meal, but all he could provide was honey.

"That is food I care nothing about," said the cat. "Have you not a mouse?"

"Oh," replied Reynard, "come with me to the priest's barn, it is full of mice!"

So the two set out, and presently they came to the barn.

"There is the entrance," said the fox, pointing to the hole by which he had himself entered the night before and stolen a good fat hen.

Now, the priest had set a trap near the hole, inside the barn, and when Sir Tibert crept in he was caught in the trap. His mewing soon brought out the priest, who, supposing him to be Reynard, began striking out with a stick. Thereupon Sir Tibert seized the priest's leg with his teeth. This gave the worthy man some-

thing to think about, and while he and his wife were attending to the wound, Sir Tibert bit through the cord that held him and made off. All this time Reynard was hiding in the bushes close by, and laughing most heartily.

REYNARD TELLS OF A TREASURE

WHEN at last Reynard the Fox was brought to the court, so many witnesses appeared against him that he was found guilty and sentenced to death. Just before his execution, he asked that he might make a confession of all his misdeeds, for he now felt very penitent; and in the course of this confession he said something that made the king listen very carefully.

"My lord the king," he declared, "in Flanders there is a dense wood by a river, and in it I have hidden a great treasure—money, jewels, precious stones—and I want you to get this treasure; then perhaps you will remember your devoted servant, Reynard."

The animals who had accused the fox now began to feel very nervous, for King Lion, having learnt exactly where the treasure was supposed to be hidden, forgave the fox and made him a noble.

"Hear, all you knights and gentlemen," said the king. "Sir Reynard is now one of the chief officers of my court, and I do charge you, upon pain of death, to show him the greatest reverence at all times and in all places." Reynard



"WHERE IS KAYWARD?" ASKED BELLIN

now asked permission to make a pilgrimage to Rome, and he set out, accompanied by his enemies, the hare and the ram, who were now his humble, though unwilling, attendants.

Soon the party arrived at Reynard's house, and the fox asked Bellin the Ram to keep guard outside, while Kayward the Hare went into the house to see Reynard's meeting with his family.

Once inside, it was not long before the hare was killed and eaten.

Then the fox came out, and giving a bag to the ram, asked him to take it to the king.

"Where is Kayward?" asked Bellin.

"Oh, he is talking with his aunt, and wants you to go on, as he will soon overtake you."

The ram carried the bag to the king.

"Sire," said he, "this is a present from Sir Reynard, who rested for a few hours at his castle before going on to Rome."

"Open the bag," said the king, "and show the gift of the noble Sir Reynard."

The bag was opened, and out fell the head of poor Kayward the Hare.

"Alas!" said the king, "unhappy monarch that I am ever to have given credit to a sly and traitorous fox."

REYNARD AGAIN ESCAPES

THE day after Bellin the Ram had brought the head of Kayward the Hare to the king from Reynard, Laprel the Coney came into the court weeping and crying.

"O king! deliver your subjects from the wicked attacks of Reynard the Fox. I was passing his castle yesterday, and he came out telling his beads so devoutly that, instead of hastening away, I saluted him very humbly, and immediately he gave me such a terrible blow with his paw that I was nearly killed."



THE ROOK BENT TO SEE IF HE WAS BREATHING

At this moment in came Corbant the Rook in a great state of excitement.

"Oh, my lord, hear me!" he cried.

"I was on the common this morning, when I saw Reynard the Fox lying apparently dead and stiff on his back. My wife went and put her head to his mouth to see whether he was breathing, when suddenly the wicked creature snapped at her and bit her head right off. Then he made a dash for me, and I only just managed to escape by mounting

into the air, and from my place above I saw him eat up my dearly beloved wife."

The king was furious. Reynard was brought before him for trial a second time, sentenced to death once more, but again he escaped by talking of the hidden treasure and by promising to go in search of it himself for the king.

REYNARD'S BATTLE WITH THE WOLF

AFTER King Lion had pardoned Reynard for the second time, Isengrim the Wolf made all kinds of accusations against him, and it was decided that the two animals should fight a duel to decide which of them was in the right.



REYNARD SMOTE THE WOLF WITH HIS TAIL

The fox knew that it was only by trickery he could win, and he sought the aid of a friend of his, the ape's wife.

"Shave all the hair off your body, from head to tail," said she, "and cover yourself with oil."

This Sir Reynard did, and then in the presence of the king the fight began.

Every time that Isengrim tried to seize Reynard, the fox slipped away, his oily body being too slippery for the wolf to get a grip. Then the fox would smite his enemy in the face with his tail, and before he had recovered from the blow he would throw up in his eyes clouds of dust. This nearly blinded the wolf, and gave the fox an opportunity to chastise him. So the fight went on, until the wolf got the fox down and had one of Reynard's paws in his mouth.

Reynard was now in sore straits, but with the other paw he pinched the wolf, and when Isengrim opened his mouth to howl, Reynard snatched out his paw. Then the wolf fainted, and Reynard, laughing triumphantly, dragged him round the arena by his hind legs.

The king now pardoned the fox for everything he had ever done, and made him Lord Chancellor of his kingdom, ordering that all the other creatures should pay him the greatest honour.

STORIES TOLD IN THE OLD ENGLISH SCHOOLS

THE first book on education ever written and printed in English was Sir Thomas Elyot's "Governour," published in 1531. Considering the period when it was written, it is a remarkable book, for its enlightened views are worthy of the twentieth century; and much that is done in the education of children to-day was first suggested by its author. The book is full of interesting stories which used to be told to the boys and girls of the old English schools to illustrate their lessons; and some of these stories are given here.

THE MASTER AND HIS SCHOLARS

WHEN Dionysius, King of Sicily, was exiled by his people, he went to Italy and set up a school for boys, to whom he taught grammar and other subjects. His enemies laughed at him for this, declaring that it was quite beneath the dignity of one who had occupied a throne to keep a school. But he replied that, though he had been turned out of Sicily, he was still a king, for he had authority over his scholars.

His enemies then asked him what good Plato's philosophy was to him in his trouble, for he had studied it deeply.

"Ah," replied he, "it enables me to bear misfortune with patience!"

So moved were his former subjects by his fortitude that they recalled him to the throne—a dignity which he would probably never have regained by the sword.

THE TWO FRIENDS

ORESTES and Pilades were two youths who were remarkably alike in appearance, and remarkably fond of each other. One day Orestes was seized by command of a tyrant, who hated him deeply, and who had determined to put him to death. But Pilades accompanied his friend into the presence of the tyrant, and, in order to save the life of Orestes, loudly declared that he was the man the tyrant sought.

The real Orestes, however, maintained that he was the man who was wanted, and so perplexed was the tyrant that he knew not which of the two to condemn. At last, when the youths continued striving to receive condemnation in order that each might save the other, the tyrant's heart was softened, and he set them free.

THE CONQUEROR AND THE ARTIST

ALEXANDER THE GREAT, who conquered nearly all the world, one day went into the studio of an artist, and, while watching the man paint, spoke of drawing, and colour, and other subjects about which he knew little or nothing.

At last the artist turned round, with a smile, and said to the king:

"Do you see, noble prince, how even the boy who is mixing my colours is laughing at you?"

Instead of getting angry the king accepted the rebuke, and ceased to talk glibly about what he did not understand.

THE TRAITOR WHO BECAME LOYAL

IT was once reported to King Philip, father of Alexander the Great, that a certain captain had been plotting against him, and the king was urged to have the man seized and shut up in prison or executed. But Philip declined to do this, in spite of the continued warnings of his courtiers and friends.

"If any part of my body was sick," said he, "should I cut it off and cast it away? Should I not rather do all I possibly could to heal it?"

He thereupon invited the traitorous captain to the palace, loaded him with gifts and honours, and in this way made him ashamed of his treason. The captain afterwards became one of the most loyal and most loving subjects of the king.

THE KING WHO WAS LOVED

CRÆSUS, the rich king, was captured by Cyrus, King of Persia, and one day, after seeing the liberality of Cyrus, he said:

"Surely if you give away like this you must become very poor, whereas if you keep your wealth you would soon have great riches."

"How much do you suppose I should have now," asked Cyrus, "if, during all my reign, I had kept everything and given nothing?"

Cræsus named an immense sum.

"Well," said Cyrus, "I will send round to my friends and subjects, and tell them that I need money for some object, and you shall see the result."

After the messengers of Cyrus had been round, the king took Cræsus to see the gifts they had sent. Cræsus was amazed, for there stood a great heap of gold, of far greater value than the sum he had named as being what Cyrus might have saved had he been a miser.

"If I had hoarded and guarded my wealth," said Cyrus, "I should be envied and hated by my people; whereas I am loved and trusted by my people, and can in a moment have more gold than ever I could have saved in many years."

THE SOLDIER AND HIS JUDGE

ONCE when King Philip, father of Alexander the Great, was trying a prisoner, he fell asleep; and then, waking suddenly, he at once gave judgment against him. But the soldier cried out:

"King Philip, I appeal against your sentence!"

"To whom do you appeal?" said the king angrily.

"I appeal from Philip asleep to Philip awake," answered the soldier, facing his judge nobly.

The king was impressed by this reply, and, feeling the justice of the man's appeal, he went thoroughly into the case, found that he had greatly wronged the soldier, and at once had him set free.

THE BATTLE WITH THE LION

AT one time, when there was no battle in progress, Alexander the Great became tired of inactivity, and, ordering a fierce lion to be brought into his presence, he fought it single-handed, and, after a terrible struggle, finally slew it.

A courtier, who disapproved of the king risking his life thus needlessly, being asked his opinion of the battle, replied in these words of great wisdom:

THE FARMER AND HIS DOG

A POOR farmer by the banks of the Nile had a good dog, which had to go hungry for some days because the farmer had no food in the house. There was a village across the river, where any dog that knew how to forage could manage to pick up a living. The farmer's dog was well acquainted with the place, as he had often gone there with his master in a boat. But swimming across the great stretch of water was dangerous, as the river was full of fierce crocodiles.

Being pressed by hunger, however, the dog finally risked it. He arrived at the village, but on the way he had two such narrow escapes that, for some time, he was afraid to swim back. Meanwhile, he found as much food as he wanted, and grew plump and fairly happy.

But being of an affectionate nature, the dog was troubled by his separation from his master, and his sadness made him as miserable as hunger had made him before. At last he resolved to return. But how could he get back safely?

"I wish with all my soul that your Majesty might fight with a lion for some great empire!"

By this answer the courtier, while praising the king's bravery, at the same time hinted that only for a great cause, and not for mere pride of victory, should he thus risk his precious life, which was of such importance to his people.

HOW ALEXANDER CROSSED THE RIVER

WHEN Alexander the Great was going to war against the Indian King Porus, he came with his army to a very wide river, which had to be crossed. The horsemen went in, and the animals were soon up to their necks in water, so that it was impossible for the foot-soldiers to walk through the river by a ford.

The men could not swim, and were afraid to go into the water. Seeing this, Alexander, who himself could not swim, wrung his hands, exclaiming:

"Oh, most unhappy that I am, never to have learnt to swim!"

Then, seizing a shield from a soldier and throwing it into the river, he stepped upon it, and, balancing himself with his spear, crossed to the other side, using the shield as a raft. This encouraged the foot-soldiers, and in one way and another they all managed to cross the river.

Sometimes a boat crossed the river, and he would then try to get into it. But the boatmen would not have that, and one day the dog stood howling by the riverside at a departing boat, when the crocodiles, attracted by his cries, came swimming to the spot, thinking, no doubt, that they could easily take him.

This seems to have suggested to the dog a clever plan of escape. As night began to fall he again came to the riverside, and stood howling with such a show of anguish that the crocodiles crowded once more to the spot, hoping to find an easy prey. But while they were peering about, the dog was tearing along the bushes by the bank.

Two hundred yards away he silently slipped into the river, and, having now a clear way before him, safe from the crocodiles, he swiftly swam back to his master's house. There he received a loving welcome and a good supper, for the farmer had now reaped and sold his corn, and he was very glad to find that his dog had not forgotten him.

THE BURIAL OF A CITY: By PLINY

One of the greatest calamities of ancient times was the utter destruction of the beautiful and flourishing Roman city of Pompeii, when, in the year 79, the slumbering volcano of Vesuvius burst forth in a terrible eruption and buried the splendid city in ashes. Within comparatively recent years the enterprise of the Italian Government has enabled a large part of the buried city to be unearthed, and to-day the traveller in Europe has no more fascinating sight than a walk through the ruined streets of Pompeii. At the time of the disaster two men famous in Roman history lived near the stricken town. These were Pliny the Elder and Pliny the Younger. The former was famous as a soldier and a scholar, and he was the intimate friend of the Emperor Vespasian. At the time of the eruption he was in command of the Roman fleet at Misenum, a naval station on the Bay of Naples. Eager to study at close hand the effect of the eruption, he ventured too near the scene, and so met his death. His nephew, Pliny the Younger, is famous for the many charming letters he wrote to his friends, and in one to the Roman historian Tacitus he described the destruction of Pompeii and the death of his uncle. It is from this letter that the following passages have been chosen.

THERE had been noticed, for many days before, a trembling of the earth, which did not alarm us much, as this is quite an ordinary occurrence in Campania, but it was so particularly violent that night that it not only shook, but overturned, as it would seem, everything about us.

Though it was now morning, the light was still exceedingly faint and doubtful; the buildings all around us tottered, and though we stood upon open ground, yet, as the place was narrow and confined,

at a convenient distance from the houses, we stood still in the midst of a most dangerous and dreadful scene.

The chariots which we had ordered to be drawn out were so agitated backward and forward, though upon the most level ground, that we could not keep them steady even by supporting them with large stones. The sea seemed to roll back upon itself and to be driven from its banks by the convulsive motion of the earth; it is certain at least the shore was



THE TERRIBLE ERUPTION OF VESUVIUS THAT DESTROYED POMPEII AND HERCULANEUM

there was no remaining without imminent danger; we therefore resolved to quit the town.

A panic-stricken crowd followed us, and, as to a mind distracted with terror every suggestion seems more prudent than its own, pressed on us in dense array to drive us forward as we came out. Being

considerably enlarged, and several sea animals were left upon it. On the other side a black and dreadful cloud, broken with rapid, zigzag flashes, revealed behind it variously shaped masses of flame, like sheet lightning, but much larger.

The ashes now began to fall upon us, though in no great quantity. I looked

back ; a dense, dark mist seemed to be following us, spreading itself over the country like a cloud. "Let us turn out of the high road," I said, "while we can still see, for fear that, should we fall in the road, we should be pressed to death

by the crowds that are following us." We had scarcely sat down when night came upon us, not such as we have when the sky is cloudy, or when there is no moon, but that of a room when it is shut up and all the lights put out. You might hear the shrieks of women, the

screams of children, and the shouts of men ; some calling for their children, others for their parents, others for their husbands, and seeking to recognise each other by the voices that replied ; one lamenting his own fate, another that of his family ; some wishing to die, from the very fear of dying ; some lifting their hands to the gods, but the greater part convinced that there were now no gods at all, and that the final night of which we have heard had come upon the world.



VESUVIUS AND THE CITY OF NAPLES

ness, and a heavy shower of ashes rained upon us, which we were obliged every now and then to stand up to shake off, otherwise we should certainly have been crushed and buried in the heap. I might boast that during the whole of this scene

of horror not a sigh or expression of fear escaped me, had not my support been grounded in that miserable though mighty consolation that all mankind were involved in the same calamity, and that I was perishing with the world itself. At last this dreadful

darkness was dissipated by degrees, like a cloud of smoke ; the real day returned, and even the sun shone out, though with a lurid light, as when an eclipse is coming on.

We returned to Misenum, where we refreshed ourselves as well as we could, and passed an anxious night between hope and fear, though, indeed, with a much larger share of the latter, for the earthquake still continued, while many frenzied persons ran up and down, heightening their own and their friends'



THE FIELDS OF LAVA ON THE SLOPES OF VESUVIUS, WITH THE OBSERVATORY ON THE LEFT

It now grew rather lighter, which we imagined to be rather the forerunner of an approaching burst of flames, as in truth it was, than the return of day ; however, the fire fell at a distance from us ; then again we were immersed in thick dark-

calamities by terrible predictions. However, my mother and I, notwithstanding the danger we had passed, and that which still threatened us, had no thoughts of leaving the place till we should receive some account from my uncle.

PROSERPINE, QUEEN OF THE UNDERWORLD

CERES was a good and a kindly spirit, and she taught men how to grow corn. She had a beautiful daughter named Proserpine, who was as beautiful as a flower.

One day, as Proserpine was plucking blossoms, the earth opened beside her, and out of it there came a chariot drawn by black horses, and in the chariot sat a spirit with a golden circlet round his head. He was Dis, the King of the Underworld, and he carried Proserpine away to his dark kingdom, and made her his Queen.

Ceres wandered about the earth in search of her daughter, and during her wanderings no corn grew, and all men were in great misery. But at last the Spirit of the Sun told her that Dis had

carried away Proserpine to the Underworld. Dis then summoned a council of all the spirits. They decreed that if Proserpine had eaten nothing in the Underworld she still belonged to Ceres.

Now, Proserpine had been so unhappy with Dis that she had eaten no food. But, seeing a red pomegranate growing on a tree by a gloomy river, she had plucked it, because it reminded her of the flowers of earth. Dis thought that this gave him power to keep her for ever. But the spirits decided that Proserpine should stay with him only for three months in every year, and return for nine months to Ceres.

So every spring, when the young wheat rose from under the ground, Proserpine came up with the flowers.

THE LONELY OLD WOMAN OF MOROCCO

SOME time ago there was a poor woman in Morocco who had no children, and she felt very lonely. So she went to the wise man of her tribe and asked him where she could find some merry boys and girls to live with her. The wise man told her to fill a basket with some dates growing on a palm tree in her garden, and then leave the basket in her kitchen, and go to the church and pray.

The woman did so, and when she came back she found her house full of young men and maidens and children. So she became very happy with her new family. The young men went out to work and brought her much money, and the maidens kept house for her, and the children laughed and sang to her.

But one morning the children in their play upset a pail of milk in the kitchen, and this made the woman very angry, and she said:

"You miserable children of a tree! I wish I had never had anything to do with you."

And she went out in a fury. When she returned, all the children of the tree were gone, and the house was lonely. The woman was now sorry. She went to the palm tree, and saw that all the fruit was growing again; but when she put out her hand to gather the dates once more the dates turned into eyes and stared at her, and she ran away in terror and never went back to the garden again.

THE TIGER WOMAN OF THE JUNGLE

IN Burma there are two races of people. One race lives in villages and tills the ground; the other race lives among wild beasts in the jungle on the hills.

One day a villager set out for the hills, where he found a beautiful hill-woman, whom he led to his village and married. For a time they lived happily together, and had a little baby girl. But the baby died, and the villager began to neglect his wife.

Coming home very late one night, he found his hut empty, and about it were the marks of a tigress's feet. He knew what had happened. His wife had changed into a tigress and gone back

to the jungle. All his deep love for her returned, and he set out again for the hills, taking with him the clothes of his dead baby. He followed the tracks of the tigress until he came to a cave, and there he saw the eyes of the wild beast blazing in the darkness.

He was not afraid. He put down the baby's clothes at the mouth of the cave, and the tigress leaped out upon him. But when she saw the clothes of her little dead girl her heart was melted. Instead of killing the villager, she suddenly changed into a woman, flung her arms about his neck, and went back joyfully with him to their empty hut.

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CHATTERTON'S LAST SLEEP IN A GARRET IN HOLBORN

CHATTERTON THE WONDERFUL BOY

HOW A BLUECOAT BOY DECEIVED THE WORLD

It would be hard to find in all history another story so sad and so wonderful as that of Thomas Chatterton. Most boys of seventeen, if they are not going to a high school or a university, are just beginning to talk with their fathers and mothers about what calling they are to follow. But at seventeen and three-quarter years, poor Chatterton had lived his life, had done the work which was to make him for ever famous, and was dead, and buried in a pauper's grave.

This marvellous boy was born at Bristol on November 20, 1752; he died in a garret in Brook Street, Holborn, London, on August 24, 1770. No poet could have been more humbly born. His father was master of a charity school at Bristol, but died three months before the poet was born. Mrs. Chatterton taught a few scholars, but, to make a living, had also to take in sewing.

Nobody dreamed that Thomas was a genius. Up to seven years of age he was the dullest boy imaginable. He seemed quite unable to learn, and his poor mother, in her despair, thought he would grow into an idiot. But a strange chance brought out his latent talent. For two hundred years some member of the Chatterton family had been sexton at the St.

Mary Redcliffe Church, Bristol. In the tower of the church was a room where there were old chests containing documents written centuries before.

One of these chests had been broken open. The lock had never been repaired, and the documents were scattered about the room. Chatterton's father, visiting his brother, the sexton, took some of the old deeds home. They were of parchment, and he cut them up for his wife, who used some for winding her wool on; while others she made into dolls for the children.

One day, when he was about seven years old, the boy Chatterton saw a Bible printed in that old-fashioned type which we call black letter.

The handsomely carved capital letters fascinated him. He learned to read from that difficult type, making himself a scholar from printing which would for ever frighten most of us away from reading. Previously so dull, he now proved marvellously quick at learning. He read everything that he could lay his hands upon. He would sit and dream for hours over what he had read, and sometimes would break into passionate fits of weeping. Young as he was, he took very little sleep, and ate scarcely anything. He obtained as his own a dusty little garret at the top of the

house, and kept the key of the room himself. Then he would wander off to the church and study the tombstones, and make his way to the room where the manuscripts had been stored.

THE BLUECOAT TEACHER WHOM CHATTERTON LOVED

When eight years of age, he was sent as a charity scholar to the Bristol Bluecoat School, where he was very wretched, because he was taught only reading, writing, arithmetic, and the catechism. There was so much more that he wanted to learn. But a teacher there named Thomas Phillips encouraged him, and the boy loved him. Straight from school the boy would fly to his attic at home to study. There he had a pan with a huge piece of ochre, a bottle of black-lead, and some bags of charcoal, and, locking himself in, he would work for hours at heraldic designs, drawings of knights in armour, of churches, and so forth.

Everything that he did was associated with the past and its manners. But he was not content with drawing. When he was only eleven years of age he wrote his first poem, and it was printed in a Bristol magazine. As soon as he began to write poetry his gloomy spirits departed, and he became much happier. All his pocket-money he spent in taking out books from the library.

A pocket-book which his sister gave him for his eleventh birthday he filled with writing, among which were two poems that are now printed in the book of his poems. In this year he read over seventy books, mainly history and religion.

One day, after he had been studying some old documents in the church tower, he found at home a piece of parchment on which, years before, his mother had wound her silk. He examined the writing on it, and said that he had found a treasure. He carried it to his garret, and sought for all the other pieces still remaining about the house.

THE BEGINNING OF A BOY'S TRICK THAT DECEIVED THE WORLD

Midway through his twelfth year, Chatterton showed to his teacher Phillips a poem called "Elinoure and Juga." It was on discoloured parchment, and looked very old. Phillips was convinced that it was a very old composition. Chatterton answered that it was a poem which he had found among the old parchments of the Canynge family, taken home by his father from the church

tower. The truth is that the poem had been written by this little boy of eleven and a half years. He had deliberately put it into old-fashioned language with old-fashioned spelling. In order to do this he had to read books of old English words and names. He had copied these out for himself. The thoughts of the poem were, of course, entirely his own, but he preferred to clothe them in language such as would have been used three hundred years before. He quite deceived his teacher, and thus encouraged, he proceeded to a more daring deception.

He went one day to the shop of a worthy Bristol pewter manufacturer named Burgum, to say that he had found among the church parchments a pedigree of one named De Bergham. This, said Chatterton, connected the honest pewterer with that De Bergham, and showed him to be related to some of the noblest families in the land.

HOW THE WONDERFUL BOY WROTE POEMS IN THE LANGUAGE OF 300 YEARS BEFORE

Soon afterwards Chatterton took him a copybook in which he had neatly written what was described as "An account of the family of De Bergham, from the Norman Conquest to this time, from Original Records, Tournament-Rolls, and the Heralds of March and Garter's Records, by Thomas Chatterton." It was an elaborate and wonderful piece of work, but, to speak frankly, it was an absolute forgery, as the silly Burgum found when he went up to London to the Herald's office to have the pedigree duly recognised. No such person had ever borne arms. There, however, was the pedigree, according to Chatterton, and the pewterer had paid him ten shillings for it. In the document were three poems by the boy, which he declared to have been written by Burgum's ancestors. They were his own composition and marvellous pieces of work.

By this time his success had fixed in Chatterton's head the idea of a great pretence. There never was such a forgery before or since by a boy. What he did was to write the most wonderful and beautiful poems of his own, and put them into this strange old English language and declare that they had been written by a priest named Thomas Rowley, three hundred years before. There had never been such a person as this Thomas Rowley, but Chatterton gave

CHATTERTON THE WONDERFUL BOY

chapter and verse of his career, showing that he had been an unofficial priest at St. John's Church, Bristol, and had acted as confessor to the mayor of the time, William Canynge, a great merchant, famous in the history of the city.

Chatterton was not quite fifteen when he was taken away from school and apprenticed to a lawyer. The school provided the ten pounds necessary to get him into the office, and now a new and hideous life began. The wretched boy was a mere slave. He slept at the lawyer's house, where he had to share a bed with the boy who cleaned the

day he would devote to his own work. If his master caught him, he instantly burnt anything not written for office purposes. In spite of all, however, in two years and a quarter Chatterton managed to write an extraordinary number of poems, which he declared to be the work of Thomas Rowley and other writers of ancient days. Also he read extensively and educated himself with wonderful facility. On Sundays he took long solitary walks. He had practically no companions, and never took anybody into his secret, not even his mother or sisters. When Chatterton was sixteen years and



CHATTERTON IN HIS ATTIC, WRITING A POEM ON AN OLD PIECE OF PARCHMENT

boots. Chatterton's office hours were from seven o'clock in the morning till eight o'clock at night—thirteen hours a day. He was allowed to go home each night from eight to nine, and glad he was to escape from a man who treated him like a menial and made him eat his meals in the kitchen.

How Chatterton must have disliked his master; he, the poet with the soaring mind of an eagle, burning with ambition and scorn, treated with contempt by the humdrum lawyer! Still, he was a good servant. He would soon clear off his duties each day, and the rest of the

one month old, a new bridge was opened in Bristol. What was the astonishment of the good people of the city, then, to read in their local magazine a full account of the opening of a similar bridge by the Mayor of Bristol in 1248. It was alleged to have been taken from an old manuscript. Chatterton, who had sent in the account in a false name, was discovered, and he said that he was employed by two gentlemen to copy out certain ancient manuscripts. The very manuscript that Chatterton wrote, giving the bogus story of the old bridge, may now be seen at the British Museum, with many

more of his extraordinary productions. But Bristol believed it all, though Chatterton, for once in his life, confided to another boy that he had really written it himself.

Immediately afterwards, Chatterton produced more of the so-called Rowley poems, and someone who read them with admiration sent them off to Horace Walpole, the great friend of authors and artists, and himself a writer of distinction.

HOW THE POET GRAY DISCOVERED CHATTERTON'S STRANGE SECRET

Walpole was just as completely deceived as the rest, and wrote Chatterton a very complimentary letter offering to get them published in London. Chatterton in reply told Walpole that he was the only support of a widowed mother, and would be glad of assistance in the way Walpole suggested. He said nothing about the poems being his own work, of course, but sent some more with his letter.

Walpole, in his delight, showed the poems to Gray, the great poet, who at once said that the poems were forgeries, that they had not been written three hundred years before. Chatterton next tried to get a London publisher to print one of the finest poems he ever wrote, but failed. He did, however, get one or two things accepted by the London Press, and the name under which he wrote was becoming known farther afield than Bristol. But now the end was rapidly approaching.

One day, being short of money—every penny he possessed having, as usual, gone on books—he tried to borrow a little money of Burgum, who, at the last moment, disappointed him. Chatterton, who had often talked of suicide, was in despair, and sat down at the office and wrote out his will. It was an extraordinary document, and, being found by his master, horrified him. He at once dismissed the boy from his office, and here was our poor young genius, on April 16, 1770, without a situation, and without a single penny in his pocket.

THE BRAVE ATTEMPT THAT CHATTERTON MADE TO CONQUER LONDON

He was not in the least alarmed. Indeed, he rather rejoiced, for in a letter of the time he wrote: "Nineteen-twentieths of my composition is pride." A few friends raised a subscription, and, high in hopes, he set out for London with five guineas in his pocket, and a little bundle of manuscripts of his pretended

ancient writings under his arm. He did not fear London; he meant to conquer London. At first all promised well. He took lodgings with a respectable family in Shoreditch, where he shared a bedroom with the son of the landlord, an honest plasterer. Chatterton required little sleep; he was writing nearly all night. He wrote political matter, poetry, stories; he wrote a little play, for which he was paid five pounds. In two months he earned eleven guineas, and thought his fortune was made. Out of his first five pounds he sent gifts to his mother and grandmother and sister. A heart-breaking little list it is, showing how this strange, wild genius loved those at home in the humble little alley in Bristol.

He got an introduction to Lord Mayor Beckford, and, on the strength of this, got many articles accepted, and believed that he had London at his feet. But suddenly the Lord Mayor died, and editors who had favoured the bold views of the Lord Mayor feared when that strong man passed away. The articles which they had accepted from Chatterton's pen were held over; his supply of money came to a sudden stop.

THE POET WHO TRAMPED THE STREETS BY DAY AND WROTE IN A GARRET AT NIGHT

In June he had moved to a house in Brook Street, Holborn, where he had a little garret. He nearly starved himself, and burnt up his strength by tramping the streets with his writings by day, and going starving to his garret at night, there to write with furious energy until dawn came to drown the light of his candle. His kind-hearted landlady, seeing that he got nothing to eat, once or twice begged him to take food with her, but though he appreciated the kindness, he was too proud to own that he was hungry. Things could not last like this, and, after three days without food, he spent his last night tearing up every shred of his writings. In the morning, when his landlady went to call him, she found the door locked. Gaining admittance to the room, she saw the poor boy dead, with a bottle lying near him, from which he had drunk poison.

So on August 25, 1770, ended the life of this unhappy youth, one of the greatest poetic geniuses the world has ever known. The poems which he had begun to write at eleven years of age, and finished before he was well into his eighteenth year, puzzled the chief scholars of the

country for the next eighty years. Some of them were of matchless beauty, splendour, and power. Many illustrious men maintained that they really were the work of some monk who had lived in the fifteenth century, and for eight years there were angry debates as to the authorship. The mystery has all been cleared up now, of course, and we know that every one of these extraordinary poems was by the hand of this marvellous boy. He got his old English words from dictionaries and old books, but his genius supplied the thoughts which these words clothed.

Why did he pretend that his work was the work of men born hundreds of years before? Perhaps he thought that if people knew that they were his own work they would pay no attention to them. Perhaps it began in his love of mystifying people. At any rate, the deceit became a habit with him. Whenever he soars to the topmost heights of his powers, it is

when he is pretending that his work is the achievement of some monk who had been dead for a long age.

Many great poets and critics almost worship the memory of the unhappy boy. They declare him to have been the equal of Shakespeare and Milton, remembering, of course, that they have to compare a mere boy with men whose powers had full time to develop. Whatever the exact standing which we ought to accord him, it is now realised that all our poets since his death have gained inspiration from his works. He revived the spirit of romance and imagination in poetry.

Though his life was one long-drawn misery, he did not live in vain; his work breathes through the beauties of all the later poetry, and we may all take our stand with Wordsworth, Coleridge, Keats, and Rossetti, in looking back upon his brief career with a kind of awe, as on the track of some bright meteor passing earthward through a night of gloom.

PEASANT GIRL AND EMPRESS

THE INNKEEPER'S DAUGHTER WHO SLEEPS IN ROME

UNDER a great dome in the Vatican at Rome are two splendid tombs. One contains the body of the daughter of Constantine; the other is the tomb of St. Helena, the mother of Constantine.

Helena was born quite a poor girl. Her father was a humble innkeeper, and she helped him at the inn, and looked after the cows and goats. The actual place of her birth has for centuries been a subject of dispute. Many authorities believe that she was born in England, but the truth seems to be that her birthplace was a tiny village in Bithynia, an ancient division of Asia Minor. There it was that, in the bloom of her youth and beauty, she was discovered by a great officer of the Roman Empire named Constantius Chlorus. The innkeeper's daughter won the heart of the Roman officer, and, without any thought of rank, he married her.

The great noble and his peasant wife lived very happily together, and in the year 274 she gave birth to a son, who was destined to become the famous Roman emperor, Constantine the Great. Until now the husband of Helena, though distinguished in the state, was only a governor. In the year 292, however, a terrible sorrow came upon her. The great Roman Empire was divided into four parts, and her husband,

Constantius Chlorus, was made Emperor of Gaul, Spain, and Britain. But he had to choose between the wife he loved and the great position now offered to him. The Emperor Maximian, who offered the crown, offered also his daughter Theodora in marriage. A Roman emperor must have a wife of noble birth, and so, to gain the crown, Constantius divorced poor Helena, and married Theodosia.

Constantine was twenty when this happened. He must have been terribly grieved at this slight cast upon the mother he so passionately loved, for he did not accompany his father when he took up his new dignity. He remained with his mother, and later went away as a soldier on his own account, so that he became a famous warrior without any assistance from his father. At last Constantius could bear the separation no longer, and wrote to Constantine begging him to go to him. Constantine went, making a journey full of terrible dangers to meet his father at Boulogne. Together they went to England, and when his father died at York, in 306, Constantine was proclaimed emperor by the soldiers.

One of the first things Constantine did was to raise his mother to rank equal to his own. He made her empress, and the poor peasant girl of other days was

respected and beloved by all in the land. But this Saint Helena, as we now call her, was all this time a pagan. Christians were terribly persecuted in Rome at this time, and she had probably never thought of becoming a Christian. Her conversion was the result of a strange thing which Constantine himself seems to have believed. Before he could bring order and peace to the Roman Empire he had many great battles to fight, and in one of these battles Constantine saw, or believed that he saw, a flaming cross in the sky, and the words displayed across the heavens: "By this conquer." He regarded this as a sign from heaven, and became a Christian. He made Christianity the religion of the great Roman Empire, of which he was now master, and the Roman legions in time all carried the cross as their standard. It was the conversion of her son that brought about the conversion of Helena. She came forth from the retirement in which for so long she had lived, and devoted her life to Christian acts. When nearly eighty years old she set out on a pilgrimage to the Holy Land, and discovered what

was believed to be the Holy Sepulchre and the Cross. She is said to have had the Cross divided into two parts, one of which she left with the Bishop of Jerusalem and the other she sent to her son. Helena remained in Palestine for some time, and built churches at Bethlehem and on the Mount of Olives. She visited many of the churches of the East, giving liberally to each and bestowing much alms upon the poor wherever she went. At last she returned from her long travels, and died in her son's arms in 328, in the eightieth year of her age.



THE VISION OF ST. HELENA

Constantine had the body of his mother carried in state to Rome, and buried with the highest honours. The poor peasant girl of other days had come from poverty and obscurity into high place as the wife of one of the great men of the empire; next she relapsed into obscurity as complete as that in which her girlhood had been passed. Then, through the affection and respect of her illustrious son, she was made the first lady in the empire and the leading figure in the Christian Church. And at her death she lay amid the greatest figures of the nation

which had ruled all the known world. After her death Helena was canonised by the Church—that is to say, the Church found that she had lived so pure and godly a life that she was to be regarded as a saint. That is why we now call her St. Helena. It is from her that so many of our churches take their name. There are many churches bearing her name round about York, where it is held that Constantine was born. Thus we find, among others, churches named after St. Helena at Escrick, Stillingfleet, Wheldrake, Thorganby, and Skipwith. One strange little

irony remains to be noted. Before the Reformation there was in York itself an old church built on the city wall. In that church lay the body of Constantius Chlorus, father of Constantine the Great and husband of St. Helena. But no one ever thought of him. It was of the good peasant woman that they thought. They called the church St. Helena's, and never gave a thought to the dead emperor sleeping in the casket within the church bearing the name of the poor woman whom, in the hour of his triumph, he despised, thinking himself far above her.



THE FAMOUS DOGS OF ST. BERNARD, THAT SHOW ALMOST HUMAN INTELLIGENCE

HOW ANIMALS TALK TO EACH OTHER

WHEN we think of animals talking to one another, none of us expects them to have a set language such as our own. We know that they do communicate with one another, but it is not by means of words such as we use.

How do we know, then, that they talk? We judge by results. Horse talks to horse, and does his best to make himself understood by man. Dog talks to dog, and, in a hundred different ways, seeks to speak to us. Cats have their own language; the wild beasts of the forest, of the plain, and of the mountain, have their speech; the birds are gifted with a considerable language; and the insects have, perhaps, the most varied language of all. Few of us know even the A B C of the animal language; and this story will not pretend to teach it. We shall, instead, think over things which show that animals do communicate one with another, and we shall try to understand how some of them do so.

With few exceptions, all the higher animals make use of their voices. But we are not to suppose that the speech of animals is confined to the sounds which we ourselves are able to interpret. There are other ways of communicating than by the voice.

Let us suppose that some person from a far land, say, an Eskimo, were to discover two deaf-and-dumb boys "talking" upon their fingers, would

that Eskimo imagine that a conversation was in progress between the two? The method would be strange, and not to be understood by this Eskimo, who could never have heard of such a thing as the deaf-and-dumb alphabet. There are open to the animals ways of speech quite as wonderful as that employed by our skilful deaf-and-dumb boys and girls.

Let us start at the top of the animal tree, and think of the monkeys. We know that they have means of communicating one with another.

We all remember the story of Jenny, the orang-utan in London, who did such clever things under the instruction of her friend and trainer, the keeper. One day she went farther from her cage than he had meant her to go, and he pretended to be cross with her. She instantly ran up to him to make friends, put her arms round his neck, kissed him, and whispered to him till she believed herself forgiven. He did not understand what she was whispering, as, doubtless, one of her own species would.

A very different experience of ape language befell Brehm, the great German traveller and naturalist. He came upon a troop of baboons, and two bold dogs which he had with him went in pursuit. The baboons ran away, leaving behind, however, a baby baboon, which Brehm hoped the dogs would catch for him. But, as

the dogs drew near, there was a loud outcry among the baboons; and, while the rest yelled their battle-cry to frighten the dogs, a big old baboon came quietly but quickly down the rocks, snatched the little one away almost from the jaws of the dogs, put it in a place of safety, and kept guard until it had got up to the rest. Two days afterwards, Brehm met the same troop. Again the apes raised their battle-cry. Brehm discharged his gun at them. The females fled in haste behind rocks with the young ones, while the big males, roaring and barking, sprang upon the edges of rock, and then deliberately rolled big stones down upon Brehm and his companions. The baboons all acted under the command of their leader, and one actually climbed a tree, with a stone in his arms, that he might have a better and higher position from which to throw his missile.

Many such cases have been recorded, so that there is no chance of a mistake. Take an even more notable example. Here the animals were a party of baboons at the Cape of Good Hope. They had stolen some clothes from barracks, so Lieutenant Shipp sent a squad of soldiers to recover the articles. The baboons made for some caverns, which the soldiers tried to prevent them from reaching. But the baboons were too quick; they posted fifty of their number to guard the way to the caverns, and the others distributed themselves like soldiers at various posts, and hurled down great stones on the soldiers. The leader was an old, grey-headed baboon which the soldiers knew quite well, for it had often paid friendly visits to the barracks. He was the general, and the soldiers could hear him issuing his orders to the rest, while the others obeyed him as soldiers

obey their officers. Here the English soldiers had to retreat before the apes, as Brehm and his friends had had to do—to retreat from ape-soldiers who acted like human beings, upon the spoken instructions of their skilled commander.



AN INTELLIGENT MONKEY

It is not easy to study the language of such terrible animals as lions and tigers. We know that the lion roars like thunder to terrify his prey, or to challenge other lions to battle. But when the male lion talks to the lioness he uses gentle language, and will purr to the lady of his love like the great cat that he is. The speech of the tiger is not more easy to describe, but we may see by a story what happens when the tiger does speak. A few years ago a man who was resting after a day's hunting in India suddenly felt himself crushed to the

ground, and, on coming to his senses, found that a great tiger was carrying him away in her mouth. She carried him about a mile and a half, then put him down. His left shoulder was broken, and he dared not move, though he still managed to clutch his gun in his right hand. The tigress now raised her head and



OUT FOR A WALK

gave a long, soft cry. The answer came from a jungle near by, and two tiger cubs, her babies, came scuttling up. They were terribly frightened when they saw a man lying at their mother's feet. But she cried softly and purred to them, and taking him up in her mouth, gently shook him, and tossed him about from paw to paw as a cat tosses a mouse. She was telling them by speech and by action to come and eat him. After much persuasion of this sort they approached, and began with their baby teeth to tear at his legs, until, rolling over on to his side, he managed to level his gun, and shot the tigress through the heart. Tame tigers mew to call their keepers to them, and purr with

pleasure when they are answered. They have a certain cry when they want water, and another kind of cry for food.

If we notice half a dozen boys put their heads together, then separate, and all set to work, we imagine that they have agreed upon some plan. A similar conclusion is reached, then, when we see animals do the same sort of thing. Two foxes were seen descending a narrow, rocky valley. They stopped at the bottom, put their heads together, and seemed to be coming to some agreement. One of the foxes now lay down in some bushes, while the other returned up the little valley. Presently down came a hare, running as fast as it could, with the

was extraordinary in so affectionate a cat, so the mistress sat up in bed and looked about her. She at once discovered the cause of the animal's anxiety. Her husband had been seized with a fit, and was lying desperately ill, and the cat had wanted to call the wife's attention to the matter.

A clergyman not long ago saw a young cat, which had been absent from home for a week, return to the garden by way of the wall. Its mother lay on the lawn, and the kitten, which looked fat and happy after its long absence, went up to her. She got up, and they put their heads together as if talking. After a minute or so, the kitten and its mother bounded on to the



THREE ORANG-UTANS AT DINNER

The manlike apes are remarkably intelligent and almost human in their behaviour, and not only do they chatter among themselves, but they have a habit of whispering into one another's ears, as if in intelligent conversation.

fox hard after it. The hare shot past the concealed fox, which darted out a second too late, and so missed the hare. The second fox came up immediately, stopped when it reached the first, made an angry sound, expressing disappointment, then attacked the bungler which had spoilt the ambush that they had planned together.

There is no doubt that cats try to speak to their masters and mistresses. Many cats have warned human friends of fires which have broken out in the night. Extraordinary evidence of intelligence was given by a cat in a suburb one September night in 1906. Its mistress was aroused from sleep by the cat mewing and scratching her. This behaviour

wall, and off they went together. They were absent from their homes for more than a week, then returned in the best of condition. Without doubt the younger cat, on first returning to the lawn, had told its mother of some great find, and she had gone away with it to share its good luck.

Wolves make very clever arrangements before setting out to hunt deer. They come up to a place in a body, hold a sort of conference, then divide, and each one takes up a place for itself. One wolf will then approach the deer, and drive it in a certain direction. The deer is too fleet to be caught like this, but up jumps a second, untired wolf, and drives it a little farther. A third wolf will chase it

toward another ambush, and a fourth will continue the chase, always working toward where another wolf is concealed, until finally one of the hidden hunters is able to dash out and make the capture. All the other wolves then come up and share the food thus won.

Naturally we expect more than the average amount of intelligence in the elephant, and we are not disappointed. It has a voice like a clarion for communicating messages to far-off companions. How this acts we know from Mr. W. T. Hornaday, who, a few years ago, was in India to get elephants for the New York Zoological Park. An attack was made upon a herd of wild elephants, and the herd was divided into two parts. One half went north, while the other

Hence enemies are brought together, and experience has taught them all that men are likely to lie in wait at these spots to shoot them. One dark night in summer an English officer climbed a high tree overlooking one of these watering-places to watch for a herd of elephants coming to drink. For two hours he waited without detecting a sign of life; then, very quietly, a huge elephant, such as the herds always follow, stalked out of the wood and walked very cautiously toward the pool, halting near it, and remaining motionless, listening intently.

Feeling satisfied at last, he returned to the wood, and came back, accompanied by five other elephants. They all marched slowly to the water, and the leader posted the five as sentinels in five different



A YOUNG ELEPHANT GRIEVING OVER THE DEATH OF ITS MOTHER

Elephants show many feelings that are quite human. In the first of these pictures we see a young elephant trying to wake up its dead mother by touching her with its foot, and in the second it is trumpeting loudly to express its grief.

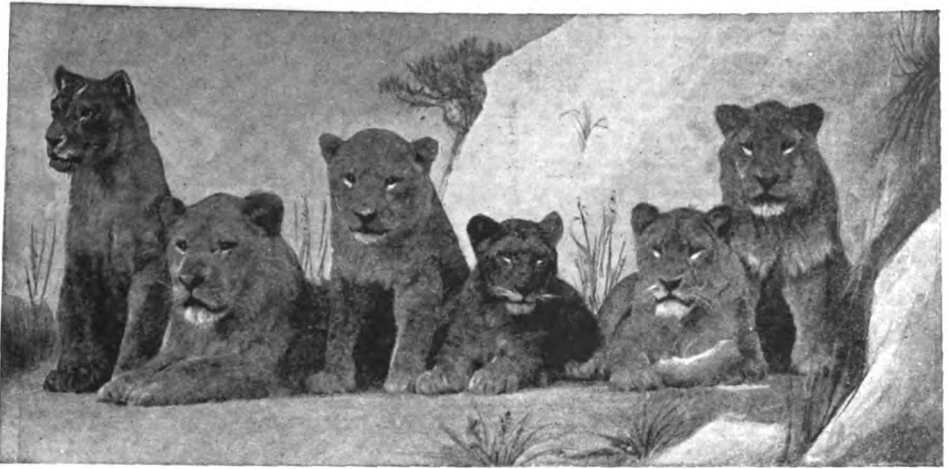
half fled south. The hunter's camp lay between the two sections. About bedtime, says Mr. Hornaday, the elephants began signalling to each other by trumpeting. The sounds were just such as a bugler would sound were he calling troops to assemble. One herd called, and the others answered, and it soon became clear to the hunters that the two herds were advancing from different directions to unite. And the two herds did unite, guided, the one to the other, by the signals. The trumpet-call, says the hunter, was "a regular *helloa* signal, and quite different from the *taloo-e* blast which elephants sound when feeding."

But there is a silent language which elephants employ. We must remember that in time of drought many pools at which animals drink dry up, so that a great number of wild beasts are driven to the pools which still contain water.

positions near the pool. Then once more he went back to the wood, and this time brought out the whole herd.

Eighty elephants trooped down to the water to quench their thirst, but not until their leader had come out to see if all were safe. They had waited to receive instructions from him, and now they and he and the five sentinels drank their fill. The officer, who watched with wonder, felt convinced that the whole plan had been carefully arranged in advance, and that the whole herd acted entirely under the control and direction of the splendid beast which led. It was a triumph for silent language.

It is after elephants are tamed, however, that we are able to see some of the most wonderful things that they do. Two tame elephants had to climb with their loads up so steep a place in the mountains that their drivers placed



YOUNG LION CUBS INTERESTED IN THE CAMERA THAT TOOK THIS PHOTOGRAPH

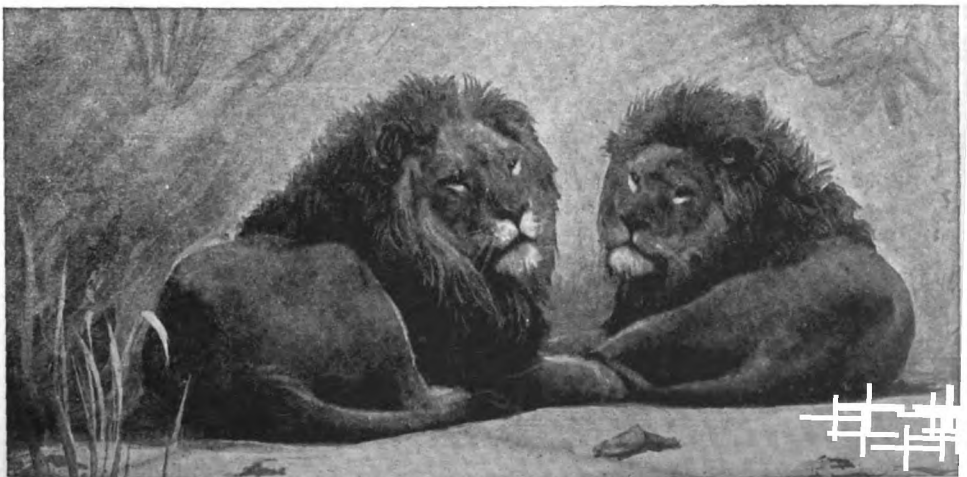
tree-trunks as steps for them. The first elephant to go did not like the way at all, and complained with loud cries to the one waiting below. The latter watched with the greatest interest and could not keep still, but was moving about all the time, as if trying to help its comrade, just as we see men moving their hands and feet when watching a gymnastic display.

At last the first one reached the top, and the turn of the second came. He was just as nervous as the other. The one at the top waited anxiously, and as soon as he could, he put out his trunk, curled it round that of the other elephant, and pulled the latter safely up.

And then what a scene of joy there was between the two! They "embraced" each other with their long trunks, and stood face to face for a long time, as if whispering congratulations.

A word now for the conversation of the pigsty. Let us remember that by nature the pig is one of the cleanest and most intelligent of animals; it is only the cruel manner in which men neglect the pig which makes this animal's habits so unpleasant. There was a famous pig in the New Forest which was taught to find and bring back game which its master shot.

This pig had a numerous family of little ones, and she noticed that, one by one, these were disappearing while she was out hunting with her master. The little ones were being taken and eaten by their owners. One night, the big old mother-pig was missed from her home, and men set out in search of her. They found her and the remainder of her family on the verge of the forest. She was talking busily away to them in the best



AN INTERESTED CONVERSATION BETWEEN TWO LIONS

of pig language, and driving them to a place of safety in the woods, away from the sty from which so many of their brothers and sisters had gone to the roasting-spit, in their mother's absence.

How whales talk we do not know, but we do know that the mother whale is a devoted parent who will fight to the death for her little ones. Brave, too, are the seals. The male seal will defend his family until he is struck dead. The mother does not wait; she calls her children with a voice like that of a bleating sheep, and away they shuffle to the sea. She talks to them in this way when danger does not threaten, and it is at the call of her voice that they go to the sea to learn to swim when they are babies.

We must all have noticed that rats and mice have some way of talking. If

a rat should discover a new source of food supply to-night, by to-morrow night he will have brought a dozen friends with him to share, and these in turn will bring dozens more. But do we ever think of the frog as a talker? He must talk pretty well. If we walk quietly up to a

frog's pond on a warm night in spring, or early summer, we hear the frogs talking. Make a sound, and there will be heard one loud, commanding croak, then a series of flops, and after that perfect silence. The leader of the frogs has sounded the danger-signal, and all the rest have popped down under water.

Here is an instance of communication of a different kind. A gentleman who lives in a country house was alone in his house for some time a summer or two ago. At the bottom of his garden runs a meadow in which frogs live. One of these frogs made its way into his garden and lived in his rhubarb-bed. He did not like frogs, but some of his visitors did, so he let this frog remain where it was, free to come and go in the meadow or in his garden. One evening, as the gas was lighted in his house, what should he see on the doorstep but the frog from the meadow and the rhubarb-bed! The weather was very chilly, although the time was summer, so there was a fire in the sitting-room.

Master Frog, hopping through the doorway, entered the sitting-room, looked about, then hopped toward the fire, and squatted down, blinking comfortably at the cheery blaze. The gentleman was amazed at its impudence, but let it remain for an hour or so, then he gently put it out of doors and went to bed.

Next night the frog was there again, so he felt bound to feed it, for mere hospitality's sake. He knew nothing about the diet of frogs, so after puzzling his brains he put down some powdered sugar. And, astounding to relate, the frog ate it—every speck of it. After staying its hour, it was put outside. There had never, up to this time, been more than one frog at a time in that garden, so far as was known, but the very next night after the supper of sugar, the

frog came back, accompanied by its mate. Both creatures received sugar that night, and they enjoyed it. Every night for the next three weeks the two frogs appeared at the same time at the house, were admitted, and were given their supper of sugar. And

then, at the end of the third week, the kind-hearted gentleman had the misfortune to tread on one of the frogs and kill it. The other one went out as usual, but was never seen afterwards. It could not understand that its mate had been killed by accident, and it could not go again to the place where its mate had come by its death.

From wild animals we come back to tame creatures. Anyone who has had donkeys in his neighbourhood need not be told that these animals talk to each other. There is a cheeky little Shetland pony, who has had his portrait in the *Children's Encyclopædia*, who knows how to talk to a donkey. The pony spends an hour or two every day in a meadow adjoining his stable, and some times a donkey is to be seen in the field next to it. The pony, on being turned into the field, first takes a gallop all round, then canters up to the iron fence, and neighs. This call brings up the donkey to the other side of the fence, and

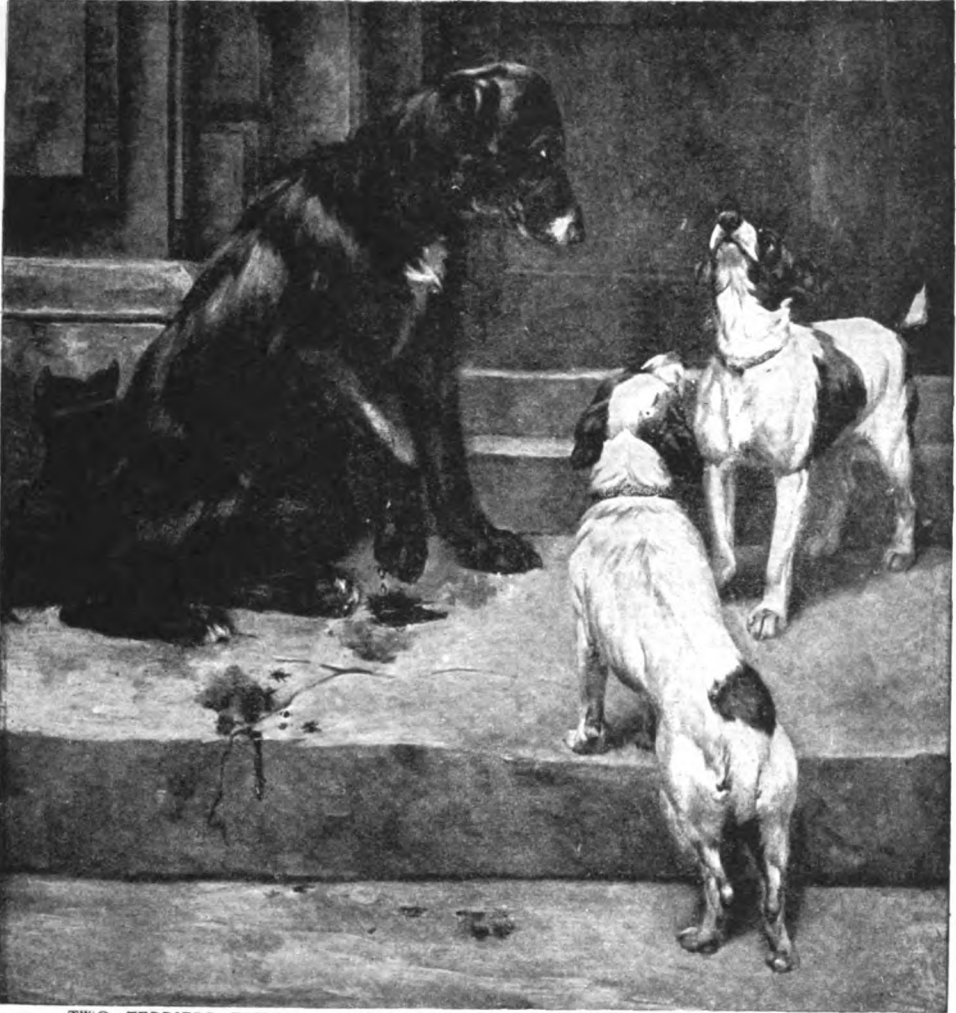


A CAUTIOUS FOX

the pony waits for the donkey to put his head between the railings and gently nibble his neck. Then he returns the compliment by nibbling the neck of the donkey. That is an exchange of service which horses and donkeys love.

This pony has his set speeches with which he summons people to his stable. He has a shrill neigh which announces

But what of the dog and his speech? That he understands much that we say, all of us who have kept dogs know. A fine example is furnished by a gentleman who was talking to a Scots shepherd of the latter's dog. The shepherd, to show the intelligence of the animal, said in the middle of a sentence about something else—and said it in a low voice without looking at the dog—



TWO TERRIERS TAKING A WOUNDED COLLIE DOG TO A LONDON HOSPITAL

This picture is reproduced from the painting by Yates Carrington at King's College Hospital, by permission of Messrs. A. and F. Pears.

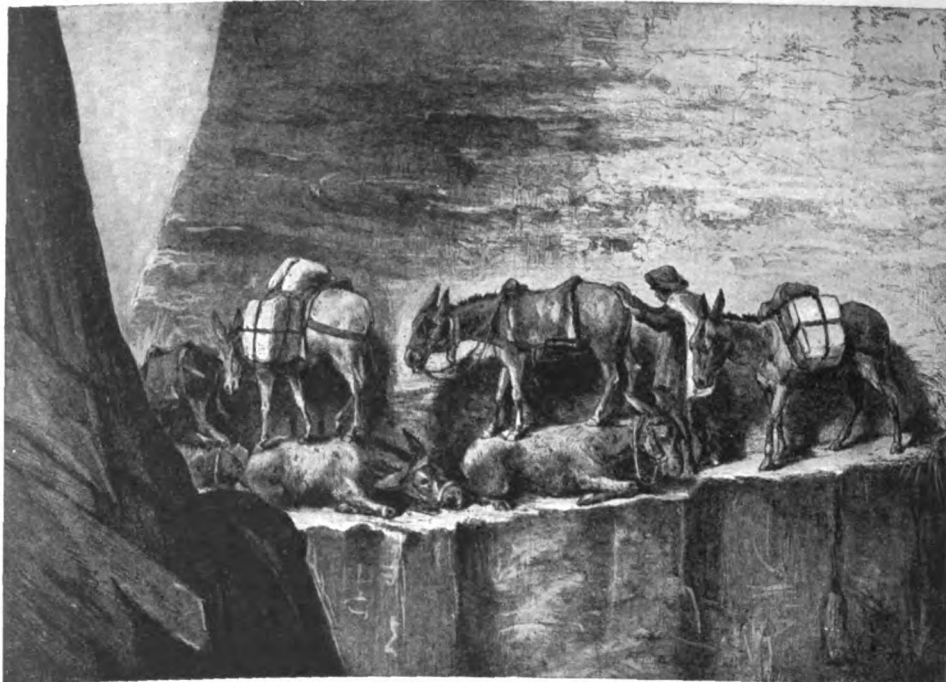
that, according to his appetite, it is time the groom went to feed him; he has a low whinny which expresses his pleasure when he hears a familiar footfall approaching his stable. If he wants to come out, he knocks at the door with his front feet. Should he by any means be short of water, he will tap at his bucket with one of his hoofs until somebody supplies him.

"I'm thinking, sir, the cow's in the potatoes." The dog instantly leapt up, sprang through the window, and clambered up on the turf roof of the hut to get a good view. Not finding the cow in the potato garden, it went to the cowshed, saw the cow there, then returned. The trick was repeated, and again the dog darted off, with similar results.

Presently the shepherd said, for the third time: "The cow's in the potatoes, sir." But this time the dog merely got up, showed his teeth as if in a smile, growled at his master, then curled himself up before the fire, and refused to go out.

There is a good deal of language in the bark and in the whine of a dog; the dog can almost speak to us with his eyes, with the twists and jerks and shrugs of his body. But how do dogs talk to one another? Perhaps at times their thoughts are transferred, without sounded

not their master, after following them for some distance, called them back. More wonderful than this, for the reason that it was in a better cause, was the action of a spaniel which was found lame by a kind doctor. He took it home and cured it, and let it go. A few months later the spaniel returned, quite well, but bringing with it another dog which was lame. With pitiful looks and whins it seemed to beg the good doctor to give its friend as kind treatment as it had received itself.



HOW MULES PASS ONE ANOTHER ALONG THE EDGE OF A PRECIPICE IN THE PYRENEES
These animals show remarkable intelligence. When they meet on a narrow ledge, the mules going one way lie down and keep perfectly still while the animals going the other way step over them, as seen here.

words, from dog's brain to dog's brain, as we transmit telegrams without telegraph wires. It is certain that nothing could be heard when the following incident took place. A puppy, nearly full-grown, was lying on a garden wall, while his father lay below. Suddenly the puppy spied an enemy, a big dog, running down the road. The puppy jumped down and went to his father. They put their heads together and seemed to be talking for a moment or so. Then both leapt on to the wall, jumped on to the road, and set off, as hard as their legs would carry them, after the big dog. Alone, neither was a match for the big animal; together they could thrash him, and they would have done so had

Lest we should think this is too wonderful for belief, let us recall an incident which happened at a London hospital. Three dogs marched in there one day. Two of them were terriers belonging to a well-known bookseller.

These two were all right, but between them they helped into the hospital a big collie dog which had been injured. The terriers lived near the hospital, and their master's explanation is that, frequently seeing injured people taken there, they had come to the conclusion that a place which was good for suffering men, and women, and children, must be good for suffering dogs. But how eloquently they must have talked to persuade the injured collie to let them take him to the hospital!

THE NEXT STORY OF NATURE IS ON PAGE 541.



THE LOUVRE IN PARIS, ONCE A FAMOUS PALACE, NOW THE LARGEST MUSEUM IN THE WORLD
CONTINUED FROM PAGE 520A.

A FIRST HOLIDAY IN PARIS

THE BEAUTIFUL SIGHTS OF A BEAUTIFUL CITY

OUR second "armchair" journey takes us to Paris. We are joining, in imagination, a happy little party of schoolgirls spending their spring holiday with Mademoiselle, their French teacher, in that beautiful and most interesting city.

The prospect of really needing their French has spurred the girls on to learn quickly and well, and to follow with delight the lessons of Mademoiselle from the large map of Paris on the class-room wall. They all try to outdo each other in the neatness of their outline maps, traced on tracing-cloth, showing the Seine and the principal streets, and in making the notes in their books to remind them of the makers of Paris, and the famous people who have lived in it.

At last the longed-for day comes. The small suit-cases are packed, ready to be registered through, with a few best clothes, for we are not going to climb mountains or run wild on the seashore. The little books of tickets are bought, our hand-luggage is compact and light, and we are off. We find ourselves at Dover an hour and a half after the good-byes at Charing Cross, before we have really calmed down over the exciting prospect of a fortnight's sight-seeing together, with Mademoiselle all to ourselves.

We stay on deck during the short crossing, and try to feel interested in the beauties of the choppy sea, and in the passing shipping, and in the fact that in mid-channel we can see the white cliffs of Calais before we have quite lost sight of the cliffs of Dover.

A little over an hour, and the eighteen miles are covered, and we step ashore, "foreigners" for perhaps the first time in our lives, feeling bewildered at demands for our tickets, and rather agitated over getting our hand-luggage through the Customs.

As our train passes along the sands outside the walls of Calais, we get a good view of the old-fashioned town, so long connected with English history and trade. It was here that Queen Philippa begged with tears for the lives of the brave citizens from the angry Edward III., and we remember, too, how deeply the miserable Queen Mary took the loss of the town to heart.

During the journey of three and a half hours between Calais and Paris, all is interesting and delightful. Boulogne, where Napoleon's boats waited in vain to conquer England, is soon passed, and we enjoy the look of the people and their luggage, the unfamiliar advertisements, the grey houses and stiff gardens, the rows of poplar-trees bordering the straight roads; even the restaurant car has its charms.

Still, we are glad enough to get our first sight of Paris, and to come to a standstill in the North Station. An omnibus is waiting for us, but it is half an hour before our luggage is claimed and passed by the Customs, and the porter can carry it off.

Our hotel is not one of the large, expensive ones, where many English and Americans go, but a quiet old French house on the left bank of the Seine, not far from the old heart of the city. No one speaks English, so

we shall have to make an effort to say our little greetings and express our wants and thanks in French.

How delightful are our simply furnished bedrooms, all opening into each other, with pretty white beds, and tables to write at, and the windows looking across the river to the buildings of the Louvre! Our few possessions are soon arranged, and our first French meal enjoyed, and then we sally forth for a walk—in Paris.

We do not need to go far; the quays close by, and the bridges, are full of busy life. There are the workmen in blue blouses and caps, going home from work; the women with their blue aprons and neatly dressed black hair, without any hats; the children with long plaits, all talking and laughing, and full of animation. How clean is the river, how fresh and keen the air; how fairy-like it seems when the lights begin to appear along the quays, outlining the bridges, and on the little steamers and barges! We eagerly look for the towers of Notre Dame, the spire of the Sainte Chapelle in the Law Courts, the Eiffel Tower, with its great light on the top, the highest monument in the world, and then home to bed—for kind, polite Madame makes her house feel like home to us—so as to be ready to start early in the morning.

Mademoiselle tells us, over our delicious breakfast of rolls and coffee—some of us prefer chocolate—that we are to begin with a birdseye view, so we joyfully make our way along the quays on the south side of the river till we come to the short bridges that lead on to the Ile de la Cité, the Isle of the City, and soon find ourselves walking round the great cathedral of Paris, dedicated to Notre Dame, our Lady, admiring the three-storied west front with its beautiful rose window, and the wonderful flying supports, or buttresses, round the choir.

But it is one of the towers we wish to ascend—resting on the way, for it is a good climb—to look at the fearsome monsters carved in stone that gaze out over Paris from the gallery round the

towers. It is nearly 400 steps to the platform at the top, but once there we stay a long time, and we look and look, and do not want to talk. The river, like a silver thread, we see bordered by quays and crossed by many bridges. We see, too, many wide, straight streets and open spaces, with spires and towers rising from them, and in the distance are swelling hills.

At last, when we have looked long enough, Mademoiselle leads us back to the beginnings of this vast and handsome city, with its three millions of inhabitants. She bids us look down on the little boat-shaped island—formed of two or three islands, artificially joined as the years went on—on which Notre Dame stands.



THE BEAUTIFUL SAINTE CHAPELLE

This is the true heart of the city. As we look, we are led to think of the settlement of fishers and hunters that was found here 2,000 years ago, and was described by Julius Cæsar. He called it Lutetia. The modern name, Paris, comes from the early tribes—the Parisii—who lived in Lutetia and the neighbourhood. By degrees came others sweeping over the country. The fierce, lawless Merovingians led their picturesque life here; many Franks of different families raced hither and thither, their long hair streaming in the wind.

In front of the cathedral we noticed the great bronze statue of the hero Charlemagne; he stands out in the years about 800 A.D.

And then Mademoiselle leads us to think, as we look down on the Seine, with its busy steamers darting to and fro, of the days when the bold Normans swarmed up the river from Rouen, burning what they could not carry away. We then pass on to the foundation of the present cathedral in the middle of the twelfth century, and its completion a hundred years later in the reign of the saintly Louis. He built the Sainte Chapelle in the Palais de Justice, which is also on the Isle of the City, to hold the precious relics he brought home from the Crusade. He has been called the Father of Paris; and the small island covered with dingy white houses, lying behind the Isle of the City, is named after him.

Louis lived in other palaces besides that on the island; and there was founded in his reign, on the south side of the river, a sort of hostel for students, which grew in the course of centuries to be a great place for education. It is known as the Sorbonne, and the quarter in which it stands is called the Latin Quarter.

Coming down from the tower, we pass inside the cathedral, and sit awhile to

admire the light streaming down from the upper windows over the double aisles with their cross views. What stories those pillars could tell if they had a voice! The funeral service of St. Louis was held here, also the coronation of the English king Henry VI., when ten years old, as King of France, for in the fifteenth century the English held Paris for sixteen years. Grievous was the havoc wrought at different times from "restorations" in the seventeenth and eighteenth centuries; and at the awful time of the Revolution the greater part of the old statues and choir chapels were destroyed.

The splendid coronation of Napoleon I. and Josephine took place here, also the grand marriage of Napoleon III. In the frantic times when the successful Germans surrounded the city, they looked on with amazement at Frenchmen destroying each other and the buildings of their own beautiful capital. Notre Dame had a narrow escape. Chairs were piled up

and set alight, and the building was only saved from destruction by the want of air and the dampness of the walls.

But Mademoiselle tells us we have seen and thought enough for our first morning, and we are quite ready to follow her to lunch and a rest.

In the afternoon we take the steamer to the Jardin des Plantes, where there are animals, too. We spend a happy time

watching the children and seeing their delight at the peacocks spreading their grand tails and shining blue among the bushes.

The next morning, early, we make our way to the Louvre, across the Pont des Arts—the Bridge of the Arts. We know the shape of the vast pile of buildings from our map, and from our view of it from the tower of Notre Dame; and before going inside we spend some time walking

about the courts—the inner court, where we can see the corner in which the old castle of the Louvre once stood, and the larger court, where stands the statue of Lafayette—given by the children of America—and the monument of Gambetta, the French statesman.

As we pass round, we think of the builders of the huge palace, as it grew through the centuries. Such were Francis I., he who had such gay times with King Henry VIII. at the Field of the Cloth of Gold; Catherine of Medicis, the mother of three kings of France; Henry of Navarre, the hero we know so well in Macaulay's poem, "The Battle of Ivry." Louis XIII. and Louis XIV. did their share, and so did, long

after, Napoleon I. and III. The Louvre is now no longer a palace for royalty, but the largest museum and picture-gallery in the world. We may think of it as a picture-gallery, a museum of decorative art, and a historical museum all in one building.

It would take us hours merely to walk straight through, so all we can possibly hope to do during our short visit to Paris is to look in for an hour whenever we can, and study just a few of the wonders displayed in the magnificent galleries and rooms. To begin with, we are all impatient to see the models of the Assyrian mounds, and to compare the treasures from them and from Egypt with those we know so well



THE CATHEDRAL OF NOTRE DAME



THE FAMOUS STONE FIGURES ON NOTRE DAME

in the Metropolitan. The time goes all too quickly while we are absorbed in the beauty and completeness of these collections, but lunch and a rest in a restaurant close by become a necessity.

After that, we are ready to return to the wide, open space beyond Gambetta's statue, the Place du Carrousel, and to examine the triumphal arch in memory of Napoleon's victories in Central Europe. The chariot group on the top replaces the famous group from Venice which Napoleon carried off, and which had to be restored to its owners later on. We enjoy the fine view looking west from this arch.

plans, and talk over the tragic times of the vanished Tuileries. In fancy we hear the yells of the mob as they dance and shout round the carriages of the king and queen, Louis XVI. and Marie Antoinette, as they escort them from their palace at Versailles to the Tuileries. "We shall have bread enough now we have the baker and the baker's wife and boy," cry the crowd.

Next morning we start early so that we can spend a long day at Versailles, about twelve miles out of Paris. We take the tram, so as to see all we can of Paris and Sèvres and the fortifications, and are



A BUSY STREET SCENE IN PARIS NEAR THE CENTRAL MARKET

over the gardens of the Tuileries and the wide, open Place de la Concorde, with the splendid avenue of the Champs Elysées beyond. We loiter long in the gardens of the Tuileries, while Mademoiselle tells us of the handsome Tuileries palace which grew up as a sort of sister palace to the Louvre, to which it was joined by the wings. The wings we see still standing after restorations, but the splendid main part, the body, so to speak, is all gone, burnt down about forty years ago by the men of Paris, who were madened by the awful losses of the war with Germany. In the evening we gather in Mademoiselle's room, with our maps and

much amused to see the men poking their long rods into the carts to find out if anything that ought to pay duty is being smuggled. Arrived at Versailles, we first look at the wonder of the gardens. It seems almost impossible that the great expanse of woods and flower gardens, with lawns and ponds, a canal a mile long, and fountains that are the wonder of the world, was once a mere sandy waste.

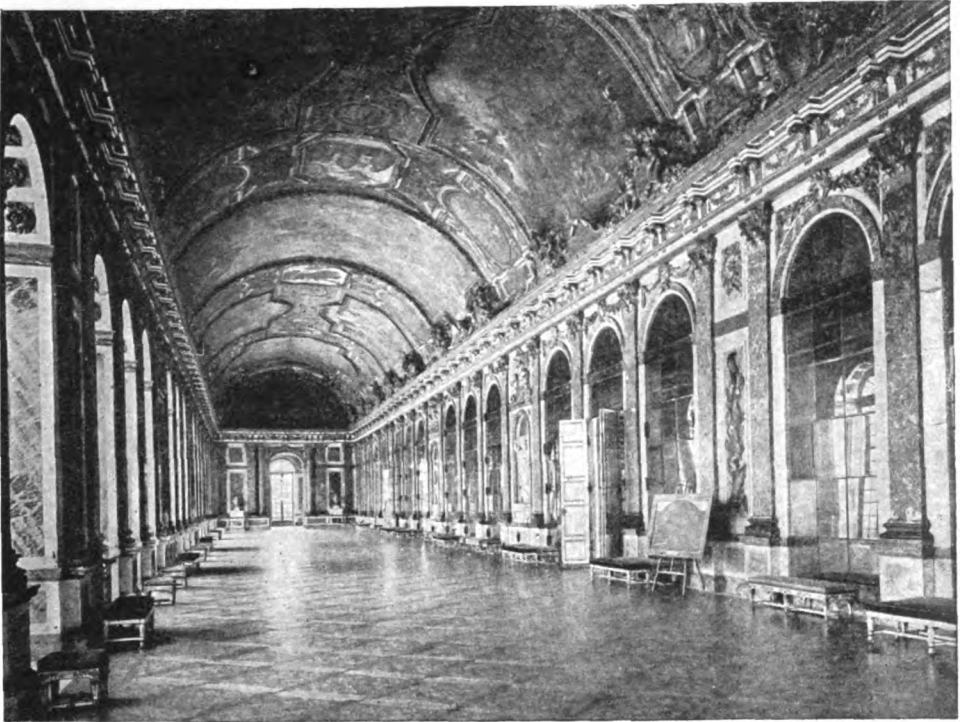
But so it was when Louis XIV. turned his mind to making the desert into a blooming garden and the little hunting castle of Louis XIII. into a magnificent palace large enough for all the Court to live in. We wander about the paths

and terraces, thinking of the labour it cost to bring the water from a distance, and to lay out these huge pleasure-grounds, and plant all the avenues and shrubberies, and adorn them with such an enormous number of sculptures. We wish we could have seen the fountains play, shooting high up into the air in many jets. The fish in the ponds are delightfully tame, and willing to share our picnic lunch. As we pass through room after room in the vast palace, we are not surprised to hear that it was built to hold 10,000 people. We see the rooms of Louis XIV., and the Salle de l'Œil de

Napoleon in all the varied successes of his life. The acres of battle pictures are too dreadful to look at very long.

We spend some time in the long Gallery of Mirrors, realising the extraordinary fact that the German army encamped for some months at Versailles, and that the King of Prussia was proclaimed German Emperor in this very room in 1871.

Next day is Sunday. After church we stroll along the quays by the Louvre, and so to the Place de la Concorde, perhaps the largest and most beautiful square to be found in the world.



THE WONDERFUL GALLERY OF MIRRORS IN THE GREAT PALACE OF VERSAILLES

Bœuf, the room with a round window like the eye of an ox, where Louis XV. kept his courtiers waiting about to see him put on his fine clothes. The rooms of Louis XVI. and his queen have a sad interest; indeed, all is sad at Versailles, the scene of the luxury and selfish extravagance when France was starving, that did so much toward bringing on the Revolution.

The pictures on the walls give us many vivid impressions of the history of France—portraits, pictures of great events, such as the Coronation of Napoleon and Josephine, with the Pope looking on; indeed, there are endless pictures of

We look at the great stone figures representing the chief towns of France, noting that Strassburg—now lost to the Germans, with Alsace—is hung with mourning wreaths and crape. Then we come to the marble fountains, and between them the Egyptian obelisk from Luxor, like Cleopatra's Needle in Central Park, New York. It was almost on this spot that the guillotine was set up during the Revolution; and more than 3,000 persons perished here in the space of a year and a half.

In the afternoon we have a good stroll round the streets, and feel intensely interested in the holiday crowds and the air

of enjoyment over all, and we look at the Palais Royal, behind the Louvre, once so gay and bright, now so dingy, and we think of the young leader of the Revolution standing on one of the tables in the courtyard, pouring out fiery words to his excited audience, who snatched green leaves from the trees—green, the colour of hope—as their badge, and resistlessly forced their way to the destruction of the hated Bastille.

Next day, as most of the museums are shut, having their floors waxed, Mademoiselle has arranged a most delightful out-of-doors day. Off we start

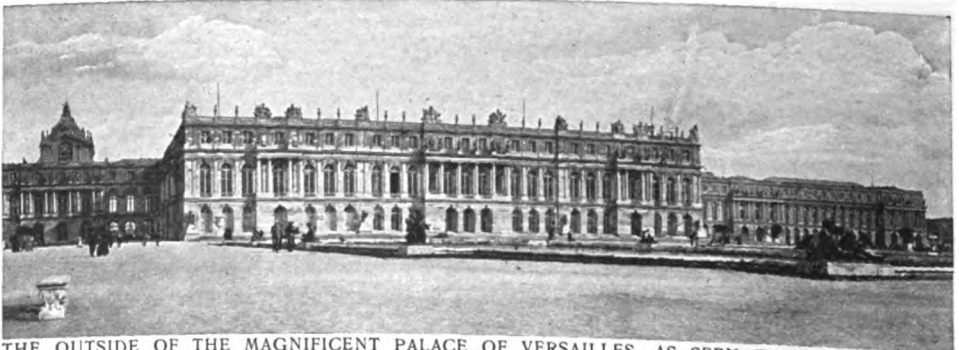
whence we can see all round this handsome part of Paris. Many wide roads lead out like rays from the arch. Descending again, we take the one that leads direct to the Bois de Boulogne.

This park is a fragment of the forest that once filled the loop made by the Seine in which it stands. We find much to interest us—the upper lake and the cascade, the lower lake and the woods and walks, and the numbers of carriages.

Mademoiselle tells us these have to go at a walking pace on the days of the great races at the Longchamps course, close by, when all Paris turns out in the



THE OPERA HOUSE

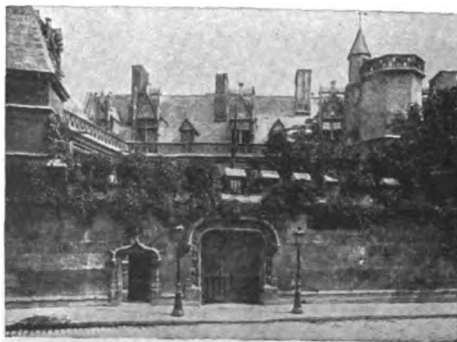


THE OUTSIDE OF THE MAGNIFICENT PALACE OF VERSAILLES, AS SEEN FROM THE GARDENS

in cabs, along the wonderful Champs Elysées, admiring the fine avenues, and seeing the children in the gardens bowling hoops, playing at battledore and shuttlecock, and thoroughly enjoying themselves under the care of their nurses in big cloaks and white frilled caps ornamented with handsome, wide plaid ribbons which hang almost down to the ground. Too soon we arrive at the Arc de Triomphe de l'Etoile, the largest triumphal arch in the world, which we have already seen from a distance on many occasions. The great sculptures upon it chiefly record the successes of Napoleon and his generals. We mount by the lift to the platform,

gayest and most extraordinary of clothes. We seek a sheltered corner for our picnic lunch, and then find that Mademoiselle has a pleasant surprise

for us. A friend of hers has invited us to tea with her children in the Jardin d'Acclimatation—a delightful playground, where there are both strange animals and strange plants to look at. Now, we have just been longing to speak to some French children—they look so charming—and here is our



THE CLUNY MUSEUM

chance. They are younger than we are, but we are glad, for it is we who are shy, not they, as they come forward to speak the little English that they know and help us with our little French.

We soon make friends, the youngest of us joining them in riding on the elephants and camels, and driving in carts drawn by ostriches. And then they take us to the little ponies, standing in their nice stable, and they smile as we try to pronounce their names, and we watch the children going off to have riding lessons. We find the large rabbit-house, delightful also, and the absurd little dogs—all these are for sale. Presently we have coffee and cakes, and then a run through the gardens, finding most of the old zoo favourites under their French names. The hothouses recall the Bronx.

Next morning we leave a large bunch of roses for the children's mother, with a message of thanks, and then we make our way to the Greek sculpture at the Louvre. We look only at a few of the marvels, for Mademoiselle likes us to look earnestly at one for a time, and then shut our eyes and recall it in our mind, and then look again, thus learning it by heart. This we do with the beautiful Venus. We feel her quietly drawing us on all the way along the corridor at the end of which she stands alone.

Some of us have seen casts of her before, but, oh, the difference as we look on the marble itself! We feel it delightful to see such perfect, peaceful beauty.

Those who love the Parthenon Gallery in the British Museum in London are interested in the fragments of the frieze, showing the gentle Athenian maidens, in the Louvre, and we each find something that we particularly like to print on our memories—the Winged Victory of Samothrace, the Boy with a Goose, Alexander the Great, Discobolus Resting, Old Father Tiber, and other treasures. The afternoon turns wet, and, to our

joy, Mademoiselle's friend asks us to come to see her children again. So we have the pleasure of seeing a French family at home, and greatly admire the shiny neatness and all the pretty arrangements. We teach our little friends how to play some of our games—Oranges and Lemons, and Nuts in May—and then they show us some French games. We are delighted with their picture books and song books, and the dolls and toys that they show us so prettily.

Next day is still wet, so we cross to the Louvre and spend a couple of hours getting to know some of the wonderful



NAPOLEON'S TOMB IN THE HEART OF PARIS
Known as the Hotel des Invalides

pictures. Mademoiselle takes us first to Mona Lisa, La Joconde. How she smiles; how her eyes follow us; how alive she is; how she sets us thinking and wondering! We feel we shall never forget her look. Leonardo da Vinci worked four years at this picture, and then it was not finished. It gives us a home feeling to meet with the splendid portrait of Charles I., by Van Dyck, and Hampstead Heath, by Constable. We stay as long as we like before the great pictures that attract us, but Mademoiselle

thinks six, or eight at most, are as many as we can really remember at all well.

In the afternoon we walk or take omnibuses along the boulevards, the wide, tree-bordered roads built on the lines of the old fortifications, and are greatly amused with the life and bustle, especially with the boys shouting out the names of their papers, the chair-mender blowing a horn, the dog's barber with his box of scissors. We buy a few presents to take home, and also look in at the great Magasins du Louvre, where everything we can think of can be bought if we only know the right way to set about it.

Our treat next day is the Cluny Museum, built over the site of an old Roman palace, of which the only part left is some remains of its sumptuous bath. The present Hotel Cluny—it was the custom to call grand houses hotels in former days—was built over 400 years ago, and for long it was the home of royal and noble folk. Among them were James V. of Scotland, and Mary, the sister of King Henry VIII. and wife of Louis XII. Now, a great collection of thousands of interesting and beautiful things are safely stored in it, chiefly furniture and all kinds of rare works of art. It

is a fine place in which to dream of bygone days, for here is the actual setting in which to put our mind-pictures of the grand lords and ladies whose portraits we have seen so often in Paris. We can fancy them gliding out of the door into the garden, sitting in the stiff chairs by the splendid carved chimneypiece, playing delicately on the musical instruments, receiving as presents—perhaps rather bored—the beautiful works in silver and gold and glass, handling those magnificent keys;

and there are the clocks that ticked away their time so surely and so steadily!

The rest of the day we spend on steamers up and down the Seine, gathering some ideas of the great water trade of the city, and watching at the quays the unloading of the wine, the corn, and other things needed by the inhabitants.

We have many times noticed the dome of the Invalides, and when we come next day to spend our morning there we find that the dome itself is but a part of an enormous pile raised by Louis XIV. as a refuge for his old soldiers, the invalids. It was planned to

house 7,000; there are very few there now. The buildings round many of the courtyards are put to various purposes; others are used to display all sorts of arms and armour and relics of every kind of the terrible wars of the last few hundred years, that have drained France of her strong fathers and sons.

The Napoleon relics make the Man of Destiny very real to us. His grey coat, his well-known hats, his maps and telescopes, the toys of his adored little son, the pathetic relics of his lonely exile and death at St. Helena are all here. His remains were brought to the Invalides

nineteen years after his death, to rest, as his will directs, by the Seine among the French people, whom he loved so well. We pass to his tomb, immediately under the dome, in a round, open well, twelve yards across, sunk in the floor of the church. It is all very solemn and impressive, the dim light striking down from the windows in the dome, on to the massive marble tomb and the undying laurel wreaths of the mosaic pavement, twined round the names of the terrible battles in which thou-



THE INTERIOR OF NAPOLEON'S TOMB
Napoleon lies in the sarcophagus below

sands of friends and foes passed together from the light of day. Round the crypt are twelve imposing figures, and sixty flags captured in battle.

And now Mademoiselle says that we have had enough sight-seeing, though there are hundreds more sights to see, and during the few days that remain we spend our time on the steamers, on the tops of omnibuses, in the various gardens. We choose the finest of the days to say good-bye to Paris from the top of the Eiffel Tower. We have felt ever since we came to Paris that the tower was stiff and ugly, and dwarfed the other heights

PARIS, THE BEAUTIFUL CITY ON THE SEINE



This view of the Seine, as it flows through Paris, shows many of the fine bridges that form one of the glories of the French capital. There are 32 of these bridges, the oldest, which was begun in 1578, curiously enough, being called the Pont Neuf, or New Bridge. The latest bridge, which is the most beautiful of all, was finished in 1900.



The most conspicuous landmark in Paris for the last twenty years has been the famous Eiffel Tower, that stands in the Champ-de-Mars. The tower, which dominates the city, as can be seen in this picture, is built of iron, and is 965 feet high. It cost \$1,000,000 to build, and has been ascended by many millions of visitors from all parts of the world.

The photographs on these pages are by Messrs. Frith, Lévy, Géniaux, Neurdin, and others.



LITTLE FRENCH CHILDREN ENJOYING THEMSELVES IN THE PARIS ZOO

of the city; but now, standing on the third platform, over 900 feet from the ground—which we have reached by lifts—near the giant's head, we feel how wonderful it is to look over all the towers and spires—nay, we can see far away over most of the hills that surround the great city, and far away to the great wide France beyond. "Plenty to see next time," laughs

Mademoiselle, as we rather gravely roll up our maps, reflecting that we have not seen St. Denis, nor the Pantheon, nor the Madeleine, nor the Luxembourg, nor the Trocadéro, nor much more that lies in the wide space below us.

And so to earth again and to pack, and then to Folkestone, saying very gratefully as we part, "Merci, merci beaucoup, chère Mademoiselle."

THE NEXT STORY OF COUNTRIES IS ON PAGE 5459.



THE HALL OF THE EMPERORS IN THE LOUVRE MUSEUM



THE GIANT'S PLAYTHING

CONTINUED FROM PAGE 5316.

LONG ago, giants lived among the German mountains. Now, there was a great castle, called Burg Niedeck, that stood on top of the highest mountain in Alsace, and here the most powerful of the giants lived with his wife and family. He had one child, a little girl named Freda.

Freda was as tall as a church steeple. She was a curious child, and very fond of prying about and looking at things which she had been told to leave alone. She was allowed to roam all about the mountains, and to play in the woods and forest, but she was not allowed to go down into the valley where the little people lived.

These little peasants tilled the ground, and planted corn and wheat and barley, and grew the vines, and dug the ditches, things the giants could not do. And the giants lived by taking what the little people made. Now, it was said that the first time a peasant found his way up into Burg Niedeck it would be the end of the giants. But Burg Niedeck was very high and difficult to reach, and no peasant had ever thought of trying to get there.

One day Freda was playing outside the castle gates in the sunshine. The valley looked so cool and green and shady that, seeing no one about, she slipped down the mountain-side to find out what was below.

Presently she saw in a field in which she was standing a peasant

ploughing. He had two horses, and the iron of the plough shone and glittered.

With a cry of delight, Freda knelt down.

"What a dear little thing!" she said. "I will take it home to play with."

Spreading out her handkerchief, she carefully lifted the plough and the horses and the poor peasant into the middle; then, taking the corners in her hand, she ran up the mountain-side, skipping and jumping for pleasure. Her father met her at the gate.

"Now, little one," he said, "what is pleasing you so?"

"Look," said Freda, spreading out her handkerchief, "I have found a most wonderful new toy." And she lifted out the plough and the peasant.

But the old giant frowned and shook his head angrily.

"What have you done, thoughtless one?" he said. "The peasant is no toy. Have you not heard that as soon as a peasant comes to Burg Niedeck there will be an end of the giants for ever? Take it back instantly to the valley, and perhaps the spell will not break."

Sadly Freda took the plough and the horses and the peasant back and set them in the cornfield. But it was too late. That night all the giants disappeared, and in the morning the castle of Burg Niedeck stood in ruins. And to this day no giant has ever been seen there since.

THE WIND SINGS DOWN THE CHIMNEY

HANS ANDERSEN'S TALE OF THE SIGNBOARDS

THE Wind is a merry creature. Have you seen him sweeping across a field and making the wheat ripple like the waves of the sea? That is the Wind's dance. And the Wind not only dances, but he sings. Listen to him singing down the chimney now.

"Shoo! shoo! sh-sh-sh!" the Wind is saying. "If there were no old gentlemen wearing tall hats that I could send spinning down the road, I should be tired of town life. All the excitement and fun have gone from it. A hundred years ago there was nothing I liked better than a good blow down this street. It was more like a picture-show than a place of business. Every house was hung with signboards. There was the tailor's board with figures painted on it to show that he could turn the shabbiest rascal into a fashionable gentleman; the barber had a long pole with a wooden razor hanging from it; fishes, loaves, hats, cheeses—all the things, in fact, that were sold in the town—were painted on signboards, and when I made them swing and clatter, the noise was deafening. What a roaring, merry time I had one night when I got among the signboards! Let me see. What was it set me on that piece of mischief?"

The Wind grew silent for a few minutes, and then gave a jolly roar that made the house rock. "Oh, I recollect it all!" he shouted down the chimney. "It was the day when the shoemakers removed from their old guildhall into their new building, and brought their signboards with them. Rich and powerful were the shoemakers in those old days, and their procession was a sight worth seeing.

"They had a clown to clear the way—a comical figure with a black face and clothes made out of a patchwork of colours. How the crowd laughed as he struck right and left with his great bladder! I don't see such frolic nowadays. Behind the clown came the musicians; they were followed by the banner-bearers with the great silk banner of the shoemakers, adorned with a large black boot and a two-headed eagle.

"Mounting the scaffold where the signboard was to be put up, the chief shoemaker began to make a speech. But the clown jumped up beside him, and the people roared at his grimaces.

Joining in the fun, I rattled every signboard, and the speaker got down, saying: 'It is no use trying to talk in this wind. Let us put up the signboard.'

"But I was resolved," chuckled the Wind, "that the signboard should not be put up. I blew the shoemakers' aprons over their eyes; I upset their ladders; I carried away their wigs and hats. At last they gave over struggling with me, and went to feast in their new hall.

"I was bent on mischief. Having got the best of the shoemakers, I thundered up and down the streets, trying to think of some new prank. I began unroofing old houses, and the air was filled with falling tiles. In the night, a wilder piece of mischief-making occurred to me.

"I got among the signboards and rearranged them. Though I say it myself, the work was performed with wit and skill. When the townspeople woke up the next morning, they found that the inscription 'The Institute for High Education' had been blown on to the billiard club. The Institute got in exchange a signboard taken from the day-nursery: 'Children Reared by the Bottle.' A good-natured furrier had a fox painted on his signboard. This I carried across the street, and put it on a house occupied by a hard, cunning councillor, who pretended to be a saintly person. That made the townspeople laugh; and so did the sign which I stuck in the railings of the judge's residence. It was the barber's pole with the wooden razor. 'The razor' was the nickname that the judge's wife had earned through her cutting tongue.

"But the best joke of all," whispered the Wind, "was the trick I played on the scandal-monger of the town—a rich old woman who was always listening for tales against her neighbours. I stuck over her door a notice torn from a building site: 'Rubbish may be shot here.'

"They were merry days," sighed the Wind, "but they never put the signboards up again after I got among them. They pretended it was dangerous, but the fact was that I made some of the people so ashamed of themselves that they did not like to be reminded of my merry trick."

With that the Wind ceased to talk down the chimney, and with a whistle blew away out into the open country.

THE WONDERFUL PROCESSION OF SHOEMAKERS



The chief shoemaker mounted the scaffold where the signboard was to be put up, and began to make a speech. But the clown jumped up beside him, and the people roared at his grimaces. Then the Wind joined in the fun and rattled every signboard in the street, and the speaker got down, saying "It is no use trying to talk in this wind."

STORIES FROM THE CHINESE

It is the ambition of every family in China to have at least one boy who shall distinguish himself in the examinations through which their public officials are chosen, and Chinese story-books are full of interesting tales of the cleverness and perseverance of studious boys.

THE BIG JAR OF WATER

A LITTLE boy named Kwang, who was very clever because he always paid attention to his lessons and tried to understand everything that came in his way, was playing with some other children, when one of them fell into a large earthenware jar full of water. The vessel was a tall one, and none of the children could reach their comrade, who would certainly have been drowned had it not been for the wisdom of Kwang. He knew that anyone trying to save the boy through the mouth of the jar would not only be unsuccessful, but would probably himself fall in, and be drowned. So Kwang took up a large stone lying on the ground, and throwing it at the earthenware jar with all his might, broke the vessel. The water at once ran out, and the little boy was saved.

THE BALL IN THE HOLLOW POST

IN a little village lived a boy named Yenfoh, who was very bright and clever, and always knew what to do in difficult circumstances. One day, while he was playing at ball with some companions, the ball struck the top of a hollow post, and then fell to the bottom inside, quite out of reach of the children. All of them, with the exception of Yenfoh, thought the ball was lost. But he knew what to do. He ran to the village well and drew a pail of water. Then, bringing this to the hollow post while the other children looked on in wonder, Yenfoh poured the water in, and the ball floated to the top, where it could be reached.

THE BOY WHO FOUND LIGHT

IN the country parts of China the people are very poor—so poor that they are unable to have a light after dark, and simply have to go to bed. A boy named Kang, who was studying for the examinations, found that if he was to succeed he could not waste all the hours of darkness. His family, however, were too poor to buy oil, so what was he to do? A heavy fall of snow had taken place, and Kang suddenly remembered that white reflects light; so going out

and sitting upon the cold ground, he held his book so that the light from the snow shone upon the page. This he did all through the winter. But at last summer came, and at the same time the snow went. What could poor Kang do now? He remembered that glow-worms give a tiny light, and so he collected a large number of these little creatures, and by the light which they gave was able to continue his studies far into the night. Kang became a mandarin of high rank.

THE BOY WHO HAD NO PAPER

A LITTLE boy who had the misfortune to lose his father when he was only four years old wanted to study for the examinations; but his mother lived in great poverty, and was quite unable to buy paper or pen and ink for him. The little boy, whose name was Yang-su, was greatly distressed at this, and for some time did not know what to do. He certainly could not study if he was unable to write, and how could he write if he had no paper? But it was soon proved in the case of Yang-su that where there is a will there is a way. The boy lived near the seashore, and going down to the beach he took with him a branch of a tree, and with it wrote down words and worked out his problems upon the sand.

THE SLEEPY STUDENT

IN the province of Tsu lived a boy who was very anxious to distinguish himself in the examinations, and thus to bring honour to his parents and his native village. But he found that, after he had been studying for some hours, he began to get very drowsy, and his head would nod until finally he fell asleep. This distressed him very much, and for some time he did not know what to do to keep awake. At last he thought of a way of doing this. He tied a cord to the end of his pigtail, and then fastened this to a beam in the roof, so that when he slept and his head began to nod, the pull of the pigtail at once roused him up again.

THE WEB OF CLOTH

MENCIUS was only three years old when he lost his father, but his mother worked very hard so that her son might have a good education. She sent him to school, and at first Mencius liked going; but he soon slackened in his studies, and at last, throwing aside his books, he left the school and went home. His mother

was weaving a piece of cloth into which she had put a great deal of hard work, and which was worth a large sum of money. As soon as she saw Mencius walk into the house, she took up a knife and cut the web of cloth from top to bottom, utterly spoiling it.

"My son," she said, "you are not half so sorry to see me cut this web of cloth as I am to see you leaving your studies."

Mencius was so moved by this action of his mother that he went back to school at once and always studied very hard.

THE HOLE IN THE WALL

A POOR boy named Kwang Hung was very fond of books, and loved to study; but his poverty prevented him from being able to purchase oil for his lamp, and he had no light. He worked

for a magistrate, who at Kwang Hung's own request paid him in books instead of money, and no one was ever more delighted with his wages. Yet the books were of little use to the boy, for he was too poor to buy oil for a lamp at night.

At last he thought of an idea. His next-door neighbour had lights, and so Kwang Hung made a little hole in the wall, and by moving his book backwards and forwards in front of the hole he caught the light that came through the hole, and was able to go on with his studies.

When the examinations were held he went up with others, and so distinguished himself that his case was brought before the emperor, who gave him a high appointment, and finally Kwang Hung became Prime Minister of the Chinese Empire.

THE ROSY APPLE

IT was a cold winter afternoon, and snow covered the whole town in a mantle of white. The great cathedral clock tolled five, and a little ragged urchin, cowering in the shelter of the door, gazed up at the big tower, and wondered what the bell must look like. But the cold wind blew so cruelly among his rags that he shrank back into the doorway again, glad of any shelter from the biting cold.

At this moment the great doors were thrown open, and Hans, who was a little German boy, and lived in Strassburg, knew that men and women would now come to the church to pray.

He had often peeped in wonder through the doors, and had seen in the distance the pretty glittering candles, the beautiful figure of the Mother of Jesus, and the white-robed priests kneeling at the altar.

Then, too, he had heard the organ and the voices of the choir, and they never failed to fill him with a great wonderment and a longing to learn more about it all. If only his clothes had been a little less torn he would have dared to venture in, for he had often seen quite poor people do so; but, alas! he was clothed in rags, and he had not even a cap on his head or boots on his feet.

So he stood in the corner by the door, and watched the people pass in, as he had often done before.

Many of the ladies had long fur coats, and nearly all the men had big, warm collars and mufflers. Hans wondered what it would be like to have thick clothes, and not to feel a little bit cold

or hungry. Poor little chap, he could not imagine that, for his limbs ached with cold, and he had scarcely eaten for two days. As he was watching the crowd, a beautiful carriage drew up, and Hans saw a little girl, who was seated in it, look at him, and then turn and speak to a lady who was with her. The lady handed her something from a basket, and then the coachman opened the door and they both stepped out.

Oh, how beautiful they were, and especially the dear little girl! Poor Hans opened his eyes in astonishment, and almost thought that she must be a fairy. Her coat was of pretty white fur, and she had a little cap and muff of the same material. Around her face fell golden curls, and on her little feet and legs she wore white boots and gaiters.

As they came up the steps, Hans saw that in her hands she carried a big, rosy apple; but when they reached the top he could hardly believe what he saw, for the little maid ran up to him, and, holding it out, said:

"Here, little boy, would you like this apple?" And then, before he had time to speak, she ran after the lady, and he was left standing with the apple in his own hands!

He was so astonished that he sprang forward and gazed after the two as they went into the cathedral, and there he saw the little girl kneel down by the side of her mother, as the priests began to pray.

For a long time he stood there, and once more longed with all his little heart to go in and kneel, as he saw others doing.

It was very quiet at the back of the church, and Hans at last ventured just inside the door, and into the dimly-lighted porch. He stood there a few moments, until he could resist no longer; then he suddenly shot forward and knelt down quickly against one of the chairs. He shut his little eyes and kept quite still, until at last he heard the organ begin to play, and saw that all the people were standing up.

Oh, how he listened and watched as the service went on! And as he heard the beautiful music his heart felt as if it were growing bigger and bigger, and he

the only thing which had given him pleasure for ever so long. It would be hard to let it go, but he was full of a great longing, and his one fear was whether his offering was good enough.

He hugged it closely to his heart, and grew more and more excited; and then, when the priest at length drew near, he rose from his chair, and, with a frightened, happy sigh, he placed his rosy apple on the big golden plate. He thought with delight how pretty and red it looked among all the coins, and he watched eagerly as the priest carried it away. As he drew near the altar, all the



HE COULD HARDLY BELIEVE HIS EYES, FOR SHE RAN UP TO HIM AND HELD OUT THE APPLE

longed to cry, and yet at the same time he knew that he was strangely happy.

Then he saw that one of the priests was moving about the church with a golden plate in his hand, and as he held it before the people they placed money on it. Poor Hans! How he longed that he might put money on the plate, too! And as he longed a strange idea came to him—why not give his rosy apple to the good God to whom the priests were praying?

Hans did not know much about God, but he *did* know that his apple was all that he had in the world—his next meal and

people bowed their heads, while the priest lifted the plate high, and prayed that God would accept the gifts of His people.

Now, as he did this, a most wonderful thing happened. The pretty rosy apple, which a moment before had been held so tightly in Hans' little fingers, was turned, as the priest prayed, into pure, shining gold, and into the little boy's heart there swept a big joy that was never to leave it. His face was wreathed with glad smiles, and he was full of happiness. Of all the gifts that were laid on the plate, the little rosy apple was the greatest in the sight of the great God.

THE KING WHO COULD NOT SLEEP

THERE was a fierce and warlike young king who seemed to possess everything that the heart of man could wish. He was very rich and very powerful, and he had a great army, which he led from victory to victory. But, in spite of all his wealth and his might, he was the unhappiest man in his kingdom; his restless mind was so full of ambitious schemes that he could not sleep.

He summoned to his court the most famous doctors in the world, but none of them was able to cure him of his malady, and at last he made a proclamation

"Well, before you try," said the king, "tell me what your remedy is. Some simple thing that your mother taught you, no doubt."

"Yes," she replied. "It is something my mother taught me. Here it is." And leading the king to an open window, she pointed up to heaven.

"What! You have come to mock me?" said the king.

"No!" said the little shepherdess. "I have come to teach you to pray."

But the king still thought she was mocking him, and growing harsh with



HIS HEART WAS TOUCHED WHEN HE SAW THE INNOCENT CHILD WALKING TO THE DUNGEON

that he would give half of his kingdom to any person who could make him sleep in a calm and natural manner, but he added that anyone who tried to cure him and failed would be imprisoned.

One evening a pretty little shepherdess came to his palace and said that she could heal him. In spite of the anguish he was in, the king looked at her with pitying eyes.

"Return home, my pretty child," he said. "You cannot possibly succeed where all the wisest doctors have failed."

"No! I cannot go away," said the little shepherdess, "until I have done my work—until I have tried to save you."

anger, he called in his soldiers, and ordered them to put the girl in a dark dungeon. Sitting in a chair, he watched in a fierce mood the warders bind the shepherdess in fetters. But his heart was touched when he saw the sweet and innocent child walking to the dungeon with a smile upon her bright and lovely face. He followed her, and saw her kneel down and pray when she entered the prison.

"Kind and loving Father," she said, "teach him to pray to Thee with a humble heart for forgiveness for his sins, so that he may lie down at night with peace and happiness in his soul."

Then she remained with her head bowed in silent prayer, and the king sprang to the door of the dungeon, and cried to the warders :

"Unbind her! Set her free at once and let her depart!"

The king then returned to his room, and knelt down by the side of his bed, and clasped his hands, as he had seen the shepherdess do in the dungeon. No words, however, came from his lips, for he had forgotten the prayers which his mother had taught him. But he must have prayed inwardly, for when he lay down he fell asleep, and he woke up the next morning a changed and better man. He no longer thought of war and wealth and power, but considered how he could make his people happy.

"Oh, if only I had my little shepherdess to help me," he exclaimed, "how much good I could do!"

He at once sent his messengers out to find the little girl, but none of them was able to discover where she was. The

king was greatly disappointed; but having learnt to pray, he was now able to sleep, and he soon recovered the strength and beauty of his youth. Under his mild and skilful rule, his people became the happiest in the world, and one day a very beautiful young lady entered his palace, and said to him, with a winning smile :

"Have you forgotten me? I am the little shepherdess."

"I knew you at once, my darling," said the king in great joy. "I have been longing for you to come and claim your share of my kingdom. Oh, if only you would be queen and help me to make my people happy!"

"That is just what I should like to do," she replied. "But you will let my mother live in the palace with me, won't you? It was she who taught me how to cure you, by saying to me every night : 'Don't forget to say your prayers, my child, if you wish to sleep in peace and have happy and pleasant dreams.'"

THE LOVE THAT WAS WORTH NOTHING

KING FRANCIS of Germany sat one day in his lion garden, waiting for the animals to come in and fight. All round him were the nobles and ladies of his court.

The king nodded his head. A gateway opened below, and a great tawny lion sprang into the ring. Looking round, and lashing its tail, it laid itself down in the centre.

The king nodded again. A second gateway was opened, and a magnificent tiger appeared, and roared when it saw the lion. After prowling hungrily round the ring for a while it laid itself down, a little way from the lion.

Again the king nodded. Two leopards rushed out and sprang upon the tiger, who knocked them away with one pat of its great paw. For a while the whole air was filled with their roaring. Then it died away as the leopards slunk off to a far corner of the ring, awaiting a better chance of springing upon the tiger.

As the nobles held their breath waiting for the fighting, suddenly a little glove fell from one of the balconies,

right between the lion and the tiger. A noble's beautiful daughter turned to the knight beside her.

"Now, Sir Knight," she said laughingly, "if your love is as strong as you are for ever telling me it is, bring me back my glove."

The knight looked at her. Then, almost before anyone quite knew what had happened, he sprang from the balcony, and quick as lightning had the glove in his hands. The animals sprang to their feet, but they were too late.

A cheer went up, and everyone crowded round to praise him and to see him present the lady with her glove. She could not refuse

to give herself to him in marriage, they thought, after he had done such a brave deed for her.

The knight bowed very low.

"If for your pleasure you can expose me to such unnecessary danger," he said, "I neither value your love nor want it."

And he threw the glove straight in her face, and left her presence for ever.



SUDDENLY A LITTLE GLOVE FELL

STORIES TOLD TO KAFFIR CHILDREN

The little Kaffir boys and girls who live in the native villages of South Africa do not know any of our fairy tales ; they have never heard of Cinderella or Little Red Riding Hood. But in the evening, squatting round the fires that blaze outside their huts, their mothers tell them tales like these stories, and they become silent and attentive.

UNCAMA'S ADVENTURE

UNCAMA was a bold hunter, and finding that a strange animal came every night to his garden and rooted up his plants, he lay in wait for it, and pursued it. The strange animal ran down a great



UNCAMA FOLLOWED IT DOWN THE HOLE

hole by the side of the river, and Uncama followed it, and entered a wonderful country underneath the earth.

The strange animal then disappeared, but Uncama went on until he came to a village in which a tribe of savage dwarfs lived. The dwarfs very very fierce, and gathered together to make an attack ; but Uncama got away, and climbed up the hole back to his own country.

But when he returned to his people no one recognised him.

"Where is the wife of Uncama ?" he said. "I have a message for her."

"Uncama ? Uncama ?" exclaimed the people. "Wasn't that the man who disappeared many years ago ? His wife is now a very old woman."

So, indeed, she was ; and for some time she did not know Uncama. The hunter was now a younger man than even the baby son whom he had left in his wife's arms when he followed the animal down the hole into the underground country.

THE JACKAL AND THE LION

ONE very hot summer all the streams dried up, and the animals had no water to drink. After searching for some days they found a spring, but hardly any

water came from it, as the hole had not been dug deep enough in the earth.

"Let us all set to work and dig out a big hole," said the lion, "so that we can get plenty of water to drink."

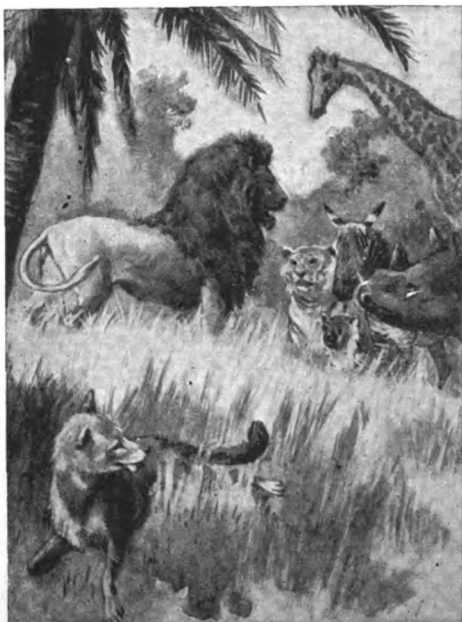
The jackal was lazy, and refused to work with the other animals. So, when they had dug the spring out, they said :

"We must now guard our fountain, and keep the jackal from drinking any of our water, since he refused to work."

"I'll watch over it," roared the lion, "and if I set my eyes on that rascal of a jackal, I'll eat him up."

Some time afterwards the jackal came bounding gaily up to the spring. But, instead of trying to drink the water, he sat down near the lion and pulled from a bag a luscious piece of honeycomb.

"You see, Mr. Lion," he said, as he munched the honeycomb, "I am not at all thirsty. This honey is really lovely."



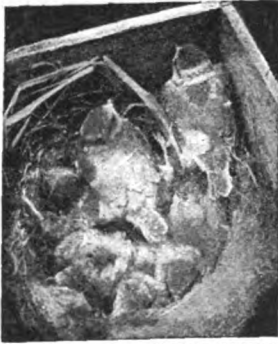
"LET US ALL SET TO WORK," SAID THE LION

"Just give me a taste," said the lion. The jackal gave him a very little bit.

"Oh, it is very good !" said the lion.

"Do give me some more, my friend."

"To get the full flavour," said the



NESTING-BOXES CONTAINING EGGS AND YOUNG BIRDS

A HOME FOR THE BIRDS

CONTINUED FROM PAGE 5295.

To the boy or girl who is a lover of Nature there are few more enjoyable hobbies than that of putting up nesting-boxes for the birds, and then, when the birds have made their nests in the boxes, paying a daily visit to see how they are getting on hatching and bringing up their little family. There are few gardens where we cannot entice the birds to nest in a little box placed on a tree or a wall for their convenience, and the cost of erecting nesting-boxes is practically nothing.

First of all as to the boxes. These may be of the simplest and roughest kind, provided they are weather-proof. A small box from the grocer's may be cut down, but if we wish to make a nesting-box the best form is as follows: Take a piece of wood 8 inches by 9 inches, as shown in the lower picture. This is for the back of the box. Then cut two pieces for the sides, 9 inches high on one side and 6 inches on the other, by 8 inches wide; a piece 8 inches by 6 inches for the front, and a piece for the bottom. The exact size of this bottom piece will depend upon the thickness of the wood used. Thus, if we use wood a quarter of an inch thick—

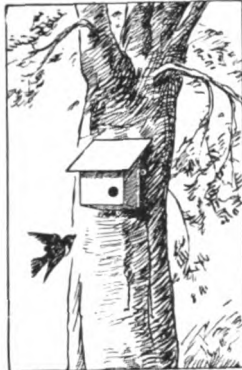
which is a very good thickness—the bottom must be 8 inches by 8½ inches. With thin nails fasten the two sides to the back, and then nail the front into position. Now fix on the bottom. We next want a piece of wood, 11 inches by 9½ inches, for the lid. This is hinged on at the back of the box in such a way that it is flush at the back, but reaches out beyond the box all round on the other sides. The edge of the lid at the back must be bevelled off to allow of its being

opened. Before putting in the front we should make a round hole, varying in size according to the birds we wish to nest in the box. For small tits the hole should be not more than 1½ inches in diameter; for great tits, robins, nuthatches, and flycatchers it should be 1½ inches; and for larger birds like starlings, 2 inches in diameter.

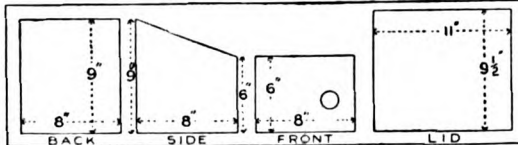
We must now decide where to fix the box. If possible, the box should face north or east, and it should be fastened firmly by a nail, screw, or hook to a tree or wall, out of reach of cats and other creatures that prey on birds and their eggs. A good height up to fix the box is from 8 feet to 12 feet, and if it is on a tree it is well to fasten round the tree a broad band of zinc, which will prevent cats and other enemies from climbing up. The sloping roof will allow the rain to run off, and will prevent cats lodging on the top and catching the birds as they go in or out. In a single garden, not very many miles from London, different nesting-boxes were occupied by redstarts, great tits, blue tits, coal tits, nuthatches, tree sparrows, house sparrows, starlings, and wrynecks. The birds, as soon as they have

selected our box for a nesting-side, begin to build their nest. Then the hen lays her eggs, and while she is sitting upon them we may once or twice a day open the lid

at the top and have a peep; but we must be careful not to disturb the bird too much. Then, after a time, the birds are hatched, and we can watch them until they are strong enough to fly away. It must be remembered that birds usually come year after year to the same spot to make their nests.



NESTING-BOX IN POSITION



HOW TO CUT THE WOOD FOR A NESTING-BOX

HOW TO MAKE A BRAID LACE COLLAR

BRAID lace is made of a special kind of braid, which is joined into a pattern held together by fancy stitches. We must learn first what kind of braid to use, then how to form it into the

want about 3 yards. We shall also need a small skein of special lace thread, No. 35 or 40, a medium-sized needle, and some scissors. First, we must tack the braid down its centre,



1. The collar complete



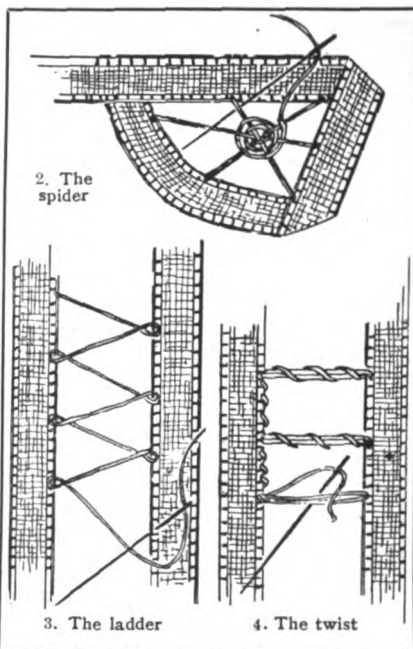
required pattern, and afterwards how to make the fancy stitches which join it all together.

To begin with, the braid itself can be obtained in many different widths, and in several shades

of cream and white. There are plain and fancy braids, and we can buy any of them by the yard for a few cents. The pattern of braid lace has to be specially designed to fit the article it is used for. For a "stock" collar it is better to have as few joins as possible in the braid itself, so we will notice the pattern given here, and observe the double lines which show where the braid comes. We shall see that they can be followed from the start—at the place marked A, in picture 5—all through the pattern, and right back to the same place again. This allows us to have one piece of braid for the pattern, and only one join. Now, we must trace off this pattern, and transfer it to a piece of moss-green linenette, about 7 inches square. This is easily done with the aid of a piece of ordinary tracing-paper. Then lay the pattern on the green linenette, and, with a piece of carbon-paper in between, go over the lines with a pencil. If necessary,

along the lines of the pattern, on to the linenette. Picture 6 shows us how to arrange carefully the corners of the braid, which should be held with the fingers of the left hand while tacking.

Then sew the overlapping corners very neatly with a few tiny stitches with a separate thread—the stitches must not go through to the linenette, of course. When tacking the braid round a curve, we should be careful to keep the tackings to the outer edge—or the widest part of the curve—to allow the braid to lie in neat, even puckers on the inner edge. These inner edges have now to be "whipped up" to fit the curves by making small overcasting stitches in the edge of the braid, and drawing it up exactly to fit the pattern. We must use the linen lace thread for this, and be careful not to take the stitches through the green linenette. We should always finish off a thread with an invisible buttonhole stitch before cutting it off; this will prevent its coming undone, and looks quite neat.

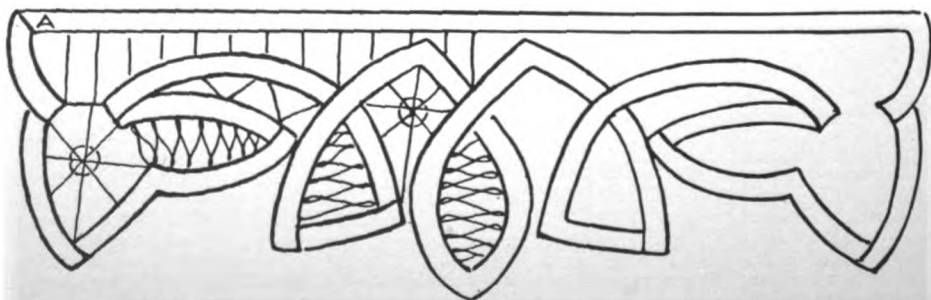


2. The spider

3. The ladder

4. The twist

Now we come to the stitches for the filling. To begin with, they must never be drawn so tightly as to drag the braid out of shape, nor should the stitches be taken through the



5. The pattern for the collar, showing how the design is made and the braid held together

we can easily ink over the lines on the linenette afterwards, to make them clearer. The braid to use for this is a plain point braid, known as D.M.C. No. 6, and we shall

green ground, but only rest upon it. Let us remember that it is the *tacking threads* only which go through the green linenette. When our lace is finished, these tacking threads are

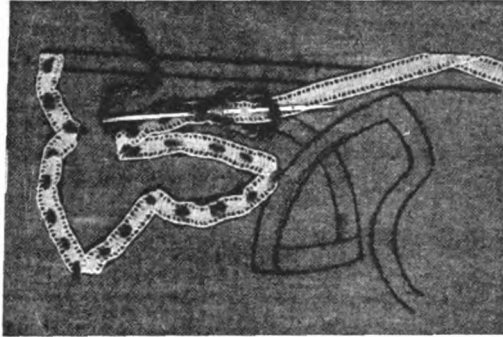
removed and our lace comes away, dainty and quite transparent, while the pattern remains for the second half of our little turn-down collar.

The fancy stitches are made with our needle and thread, and form the most fascinating part of the lace, as they fill the spaces in between the braid. There are a great many of these filling stitches, but we are only going to learn how to do three of them—the "twist," the "ladder," and the "spider" stitch. For the twist, make two crossway foundation threads from side to side of the braid, and overcast them loosely, as shown in picture 4. To reach the next twist, take three small whip stitches along the edge.

For the ladder, pass the needle from left to right under the edge of the braid, then again from right to left under the opposite edge. Look at picture 3 on page 105. The spider stitch is really a darning stitch worked

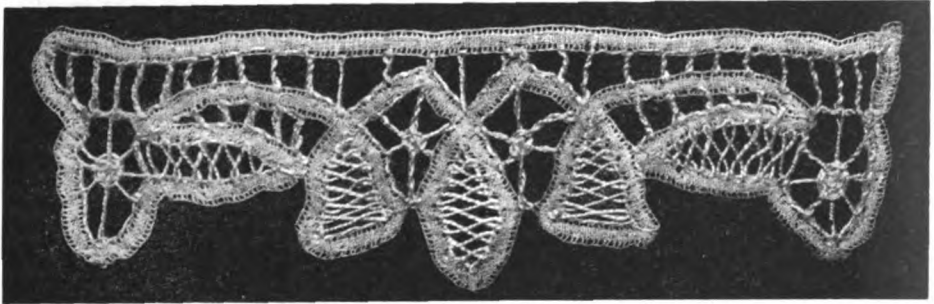
of stitches over a twist, and fasten it off with a buttonhole stitch on the edge of the braid. Picture 2 makes this quite clear. In picture 5 we see in which spaces the various stitches are to go.

When taking a fresh needleful of thread we should keep the knot, of course, on the wrong side of the braid—and let it be a very tiny knot indeed. It matters very little which stitch we do first, but perhaps the bars along the top, which are made of the "twist," make the best beginning. Then we can fill in the ladders and the four spiders. Then we untack the lace, press it on the wrong side with a warm iron, and put it away while



6. How to fix the braid in position

we do the other side of our collar, which is made in exactly the same way. To complete it we shall need a strip of cambric, about 14 inches long by 2 inches wide. This is folded into a strip to form the neckband of the collar, and the two pieces



7. The finished pattern, showing braid held together by fancy stitches

on twisted bars. We make the bars of the "twist," and start the darning stitch where they cross in the centre, going under and over about six times round. Then we take the thread to the braid again with a couple

of lace are sewn to it very neatly, as shown in picture 1. Picture 7 shows how the lace looks when untacked from the linenette, and picture 5 gives the finished pattern, exact size.

TWO WAYS OF SPLICING A STICK

EVERY boy ought to know how to splice a stick or a pole, and as the method to be followed is quite simple, there is no reason why anyone need be unable to do this very useful work. By proper splicing, poles may be lengthened, broken sticks mended, and other pieces of wood extended to a required length.

The simplest method, though the result is not the best and strongest, is to make a straight splice, as shown in the top picture. The two ends to be joined are cut to a sharp angle, and made to fit exactly upon one another. Then, if we are handling a pole or a beam, the two portions are bolted together, while if it is a stick or a thin pole, instead of bolting the pieces, we glue or screw them to one another. The best method of splicing, however, and

by far the strongest, is that known as the bracing splice. It is rather more difficult than the straight splice, but the extra trouble is well worth while, especially if there is to be much strain upon the jointed pole or stick. Instead of



Two ways of splicing a stick

there being a straight, slanting cut at the end of each portion, a kind of step is cut in each piece, and the two portions then fit each other exactly, as shown in the bottom picture. They may be fastened together by having wire bound round, if the pole is a thick one, or by using glue if we are splicing a stick.

If we are splicing a new piece of wood to some article, and the new wood needs shaping to match the old, the splicing should always be done first, and then the new portion can be worked to whatever shape may be required.

THE BEAR AND THE LITTLE WOLF

A LITTLE PLAY FOR THE NURSERY

Persons in the Play: THE BEAR. THE LITTLE WOLF

ACT I

Scene: A road by a field. The Bear enters on one side, the Wolf on the other

- THE BEAR:** *appearing to be pleasantly surprised* Well met, brother. I was wishing to find Someone to help with a plan in my mind.
- LITTLE WOLF:** *showing interest* Well met, brother; and what is your plan? I'm sure I'll be glad to help if I can.
- THE BEAR:** *pointing toward field* Yonder field is ploughed for planting with corn. Would you help me to plant to-morrow morn?
- LITTLE WOLF:** Why, yes, I shall help if you will divide All the crop that ripens as I decide.
- THE BEAR:** Well, how would you like to take one half? That would be fair, and neither could laugh.
- LITTLE WOLF:** Yes, that would be fair, and I agree That the half of the crop shall be my fee.
- THE BEAR:** *with an air of knowledge* You know that 'tis said the roots of the plants Go far down beneath the nest of the ants.
- LITTLE WOLF:** *innocently* Yes, so I have heard; 'tis wonderful indeed So much should be roots and so little seed.
- THE BEAR:** Would you like for your share the half below ground, Together with stalks that above it are found?
- LITTLE WOLF:** *offering his hand— or paw* Yes, content I shall be so to divide, And thus we'll arrange I now do decide.
- THE BEAR:** *shaking hands with Little Wolf* We agree, then, that I shall have only the ears, A plan, I must say, that leaves me with fears.

CURTAIN

ACT II

Scene: The same. The Bear beside a pile of ears of corn; Little Wolf beside a pile of cornstalks

- LITTLE WOLF:** *very innocently* I am sure, Brother Bear, you did not intend To rob me, and thus to the poorhouse to send.
- THE BEAR:** *affecting surprise* Why do you thus my intentions deride? You know you yourself were left to decide.
- LITTLE WOLF:** *indignantly* The roots are but trash, and the stalks as well Are only for burning, and not to sell.
- THE BEAR:** Well, next year, my friend, the game we shall change. And you shall have what you like to arrange.
- LITTLE WOLF:** Of this, then, be sure, I never shall choose The worthless old roots that I cannot use.

Both walk off in opposite directions

CURTAIN

POOR HOUSE

ACT III

Scene: The same. Time, a year from first meeting. Enter the Bear on one side, Little Wolf on the other

THE BEAR:
in a friendly way Well met, Brother Wolf ; so we meet again
To talk of the crop we shall plant on the plain.

LITTLE WOLF: Well met, brother. Yes, I would fain
Talk over what part of it I may gain.

THE BEAR: When last we met, if I do not forget,
On the part above ground your heart was set.

LITTLE WOLF: What you say is true, and you may prepare
In planning the crop if that be my share.

THE BEAR:
slyly All right, Brother Wolf ; then, what would you say
To potatoes, a crop that is sure to pay ?

LITTLE WOLF: Yes, potatoes are good, and agree I would
That they be planted and gathered for food.

THE BEAR: Very well, Brother Wolf, to-morrow morn
We shall plant them where once grew the corn.

Shaking hands over the bargain, they go off at opposite sides

CURTAIN

ACT IV

Scene: Same, four months later. The Bear beside a pile of potatoes, the Little Wolf beside a heap of dead potato stalks

THE BEAR:
in a lively and humorous way How now, brother ? Why so sad ?
Are you ill, or is the crop so bad ?

LITTLE WOLF:
speaking sadly You know very well the crop is quite sound,
But you have taken all we have found.

THE BEAR: I have taken no more than what you said
Should be mine to take in the game we played.

LITTLE WOLF:
in a melancholy manner These stalks are worse than those of corn ;
To the poorhouse I go to-morrow morn.

THE BEAR: Oh, no, Brother Wolf, you must not despair,
For I still desire to treat you quite fair.

LITTLE WOLF:
brightening up at this How now, Brother Bear ? Would you divide
That pile of potatoes there by your side ?

THE BEAR: Certainly, brother ; I willingly give
One half, in order that near me you may live.

LITTLE WOLF:
with every evidence of thankfulness It is good of you, Brother Bear, to reward
A stupid like me who forgets his own word.

They then move towards the potato pile like the good friends they are

CURTAIN

HOW TO KEEP A HISTORY NOTEBOOK

WE have from time to time learnt much of the world's history. How can we fix in our memories the order in which the nations rose and fell, and marshal the procession of mighty men through the centuries?

Here is a simple plan which many have found useful and interesting.

Let us take an ordinary exercise-book and rule a thick, black line down its middle opening. Along the line let us write: Time of the Birth of Christ. Then let us head twenty pages after the line thus: 1st century A.D., 2nd century A.D., up to 20th century A.D., reflecting that each page stands for 100 years.

Perhaps before going any farther we may like to jot down a few entries in the centuries to which they belong, such as Edward VII., near the beginning of the twentieth century; the opening of the first railway in America

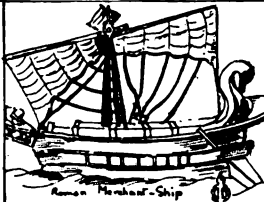


upwards, because time is reckoned backwards from the birth of Christ, and 100 B.C. is an earlier date than 1 B.C. If any difficulty is felt about this, we can number a few of the B.C. centuries, taking care that 50 comes about the middle of the page, and 75 and 25 at the first and last quarters.



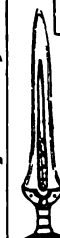
Let us fill in a few of the names we know well, passing backwards into the mists of time.

We have Julius Cæsar in the middle of the 1st century B.C.; Alexander in the last quarter of the 4th; the soul stirring names of Marathon and Thermopylæ in the beginning of the 5th, and so on.

Many of the century pages in the long stretch of years will remain empty of names, even after we have read many books and studied in many museums. From time to time, too, we may have to make changes in our

TWO PAGES FROM THE HISTORY NOTEBOOK

1st Century B.C.	
100	 Roman Merchant-Ship
95	
90	
85	
80	
75	
70	
65	
60	
55	
50	 Julius Caesar
45	 Roman Standard
40	
35	
30	
25	
20	
15	
10	
5	
1	

1st Century A.D.	
1	 British Bone Beads
5	
10	
15	
20	
25	
30	
35	
40	
45	
50	 British Brooch
55	 British Dagger
60	
65	
70	
75	
80	
85	
90	
95	
100	

before the middle of the nineteenth century; the French Revolution towards the end of the eighteenth; England a commonwealth in the middle of the seventeenth; Spenser, Shakespeare, Francis Drake, the Armada, all in the last quarter of the sixteenth; the departure of the Romans from Britain and the arrival of the English in the fifth; the Conquest of Britain in the first; as well as notices of names and events in the rest of the world.

Next, let us turn to the centuries before Christ and head the pages before the black line, 1st century B.C., 2nd century B.C., and so on back and back till we come to the 55th near the beginning of the book. Each page, as before, stands for 100 years, and, as before, the beginning of each century is at the top of each page, though, as we are dealing with years before Christ, we number from the bottom

pages, for constantly new finds of old treasures upset dates that have long been thought correct.

It adds immensely to the interest of our History Notebook if we can illustrate its pages with sketches of our own, drawn from objects in the museums or from pictures: we can also collect small pictures and fasten them on the century page to which they belong in the manner shown in the specimen pages that are given.

On the pages after the 20th century A.D. can be drawn maps of the countries in the different stages of their history, also plans of the great cities, and of the battles of the world at different stages of their progress.

If there are any spare pages at the beginning of the book, we can put in them drawings or photographs of the various prehistoric implements which belong to the distant ages before history came to be recorded in writing.

THE PUZZLES OF THE WIZARD KING

On these pages are a number of problems and puzzles of various kinds. The explanation of the puzzles that are given here, and of those that will appear in future pages of the Wizard King, is as follows: In a hidden-word puzzle the name is made up of the parts of two or more words. Example: "When ill I lie so comfortably in this cool, pleasant room!" The letters in italics show hidden flowers, lilies. In a *double acrostic* we write down under one another the names of the different things mentioned, and the initial letters read down from top to bottom, and the final letters read in the same way, give the names of the persons or things we have to discover. In a *single acrostic* only the initial letters spell anything. In a *square word* the words forming the square read the same downwards and across. *Beheaded names* almost explain themselves. Tears, ears, is an example. In a *riddle-me-ree* my first, second, and so on, are letters. A *charade* is similar to a riddle-me-ree, only in this case my first, second, and so on, are parts of a word, not merely letters. For example, my first is a professor, *don*; my second opens a door, *key*; my whole is an animal, *donkey*. *Transformations* and *anagrams* are almost the same thing. An anagram is the rearrangement of the letters of a word or words, to form a new word or words, which have some relation to the old ones. The following is an example of *quaint arithmetic*: What number, from which one is taken, is even? S-even. The solutions of the puzzles appear in the next Things to Make and Do.

1. THE UNKNOWN QUOTATION

One day there came to the palace of one of the Eastern princes a poor man who was very fond of poetry. He had with him a sheet of parchment, and on it was the curious diagram shown here. The parchment had been sold to him by an old bookseller, who told him the following particulars about it:

"At each point in the diagram, or wheel, where lines cross, you must place a letter. When

the proper 25 letters have been placed, the spokes will read as follows, beginning in each instance with the same letter at the centre.

1.—Greek letter. 2.—A short poem. 3.—A bird of Egypt. 4.—A metal. 5.—An image. 6.—A goddess of the ancient Egyptians. 7.—A flower. 8.—Is never found where there is no water.

"Around the tire is a quotation from an English poet, with his name. The middle circle is a sentence encouraging you to solve the problem. The innermost circle is another sentence of further encouragement."

The prince, who, as it so happened, knew most of the world's poets off by heart, solved the problem, and sent the poor man on his way rejoicing. What was the solution?

2. THE MYSTERIOUS INSCRIPTION

The following is the translation of an Arabic inscription discovered in the temple of Persepolis. It can be read in such a way as to form four moral and useful maxims.

say know says knows says knows
spend have spends has spends has
tell hear tells hears tells hears
covet see covets sees wants sees

Do } all } for he } all } more }
not } you } who } he } than }
 } } } } }

3. HIDDEN FISH

Be calmer, O aching heart! I have seen dogs push a door open. Let's have a good frolic, O do, dear father! Our teacher rings the bell five minutes too soon. Decatur bothered the Algerines more than once. Place the crowbar below the log in order to raise it.

4. SQUARE WORD

Without sight; enamoured; white and hard and polished; a delicate fibre in the system; one who dries anything.

5. RIDDLE IN RHYME

I am, as you'll agree with me,
The funniest thing in land or sea.
My mouth is bigger than my head,
I always stay within my bed.
Yet, funnier still, I often rise.
Now answer *that*, you solvers wise!
Yet though in bed I always stop,
You'll see me racing neck and crop
Through the valley, down the hill;
In fact, I'm very rarely still.
This condition answer me,
This funniest thing in land or sea.

6. DOUBLE CHARADE

Two riddles at once are by me now rehearsed;
The first of my first yields the first of my second;
'Twixt the next of my second and next of my first,
There's often a miss—so sages have reckoned.
Of my first and my second the wholes may be seen
Uncommonly common on a common, I ween.

7. ROB ROY'S PROBLEM

Many of us have read the fascinating story of Rob Roy, by Sir Walter Scott. Rob Roy's real name was Robert Macgregor; and during his leisure moments, when he was not fighting, he was very fond of inventing puzzles. The printed signature below shows one of his little problems.

ROB ROY

Rob Roy wrote beneath his own original little sketch:

"Start at any point you like, and trace my name, as it is given above, without removing the pen from the paper, crossing a line, or going over any of the lines twice."

How is Rob Roy's problem solved?

8. MISSING LETTERS

B-t-e-n-h-d-r-a-d-h-d-y-i-h,
W-e-t-e-i-h-i-b-g-n-i-g-o-o-e-e,
C-m-s-p-u-e-n-h-d-y'-o-c-p-t-o-s,
T-a-i-k-o-n-s-h-c-i-d-e-'s-o-r.

9. BEHEADED NAME

Autumn o'er the earth has strewed
Me far and wide ;
Everywhere my form is viewed,
Sere, and dried.
Now behead, I then pertain
To all house-tops ;
Oft the welcome, welcome rain,
From me drops.
Behead again, the nuns at prayer
Us oft repeat.
Transpose—from woe and care
Relief entreat.

10. THE SQUIRREL AND THE CORN

A box has nine ears of corn in it. A squirrel removes three ears a day, and takes nine days to carry all out. Explain this.

11. THE WIZARD'S ALPHABET

Which letter is a measure ?
Which is an industrious insect ?
Which letter is a drink ?
Which one is an exclamation ?
Which is a river in Scotland ?
Which is a bird ?
Which is a vegetable ?
Which is everlasting ?

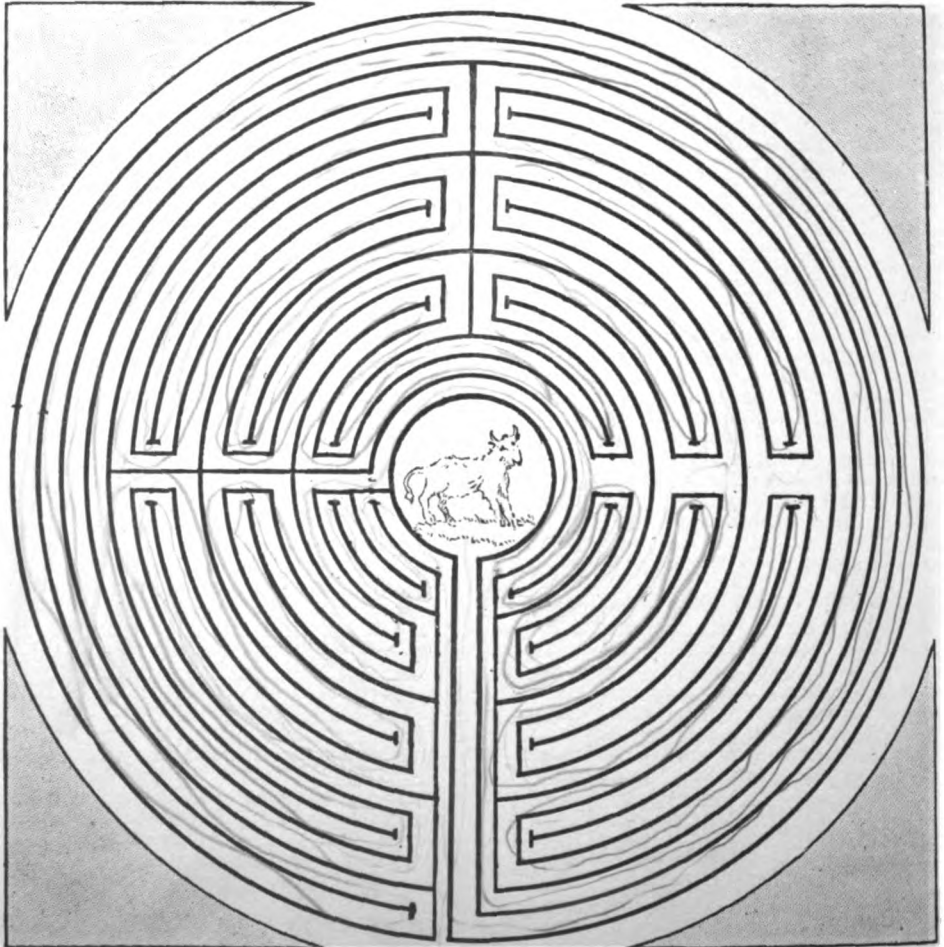
12. ANAGRAMS FROM SHAKESPEARE

(a) Scour in a dust-tin.
(b) Alike, a slim, raw sheep.
(c) Close ruin.
(d) Tap oracle.
(e) Free such lost dogs.
(f) Fan on hot jug.
(g) Scour a lion.
(h) A charm'd one.

CAN YOU FIND YOUR WAY INTO THIS MAZE?

IN the centre of this maze is a goat that has strayed in from the outside and does not know how to escape. It looks very simple

goat. Do not spoil this page of the book, but take a piece of tracing or tissue paper, or any other transparent paper, and trace off the lines



to enter by the opening at the bottom of the maze and to reach the centre, but it is not so easy as it looks. Let us see if we can reach the

of the maze. Then, starting at the opening at the bottom, try with a pencil or point to trace your way to the goat without crossing any lines.

THE NEXT THINGS TO MAKE AND DO BEGIN ON PAGE 5447.

In this passage from Miss Elizabeth Godfrey's very charming book on "English Children in the Olden Time," recently published by Messrs. Methuen & Co., we have a very tender and sympathetic study of a little princess whose lot was cast in troublous times. Charles the First was a bad king, but a good father. Though his religion and his treatment of the people raised the country against him, and finally brought him to the scaffold, his children had good reason to love their father; and it is pleasant to think of this misguided king as the playmate of his little ones. The Princess Elizabeth died young, and few of our histories do more than mention her name, so that such an attractive little story as her life here makes is well worth reading, and it adds to our knowledge of the king as well. Clarendon was the historian who told of the English Civil War, and a "halcyon time" means a time of peace and quiet, while "the coming storm" is the author's way of indicating that the Civil War was about to break out.

THE DAUGHTER OF KING CHARLES

THIS gentle little soul was of very different fibre from the two high-spirited Elizabeths who preceded her; and if ever child died of a broken heart, this little maiden surely did. Born towards the close of what Clarendon describes as "the halcyon time," before the coming storm, life smiled upon her opening years. Charles and Henrietta Maria were fond parents, and there was no oppressive regal state about the simple nursery life.

The stately king himself was not averse to romps with the children. We can fancy the merry little party at play in the great nurseries, riding, perhaps, on the old rocking-horse which had belonged to their father.

From the time of the outbreak of the trouble in Scotland there was but little peace for the royal nursery, which was shifted from pillar to post. When their father was brought as a prisoner from Holmby House to Hampton Court, they were allowed, on his earnest petition, to meet and dine with him at Maidenhead. Great must have been the joy of the little Elizabeth—grave beyond her years, and very loving—at seeing her father again, after so long and sad a separation.

There could hardly have been any merry play, unless with the little Harry, for the king's mind was too full of the serious charges he had to give them. He impressed upon Elizabeth that she must not consent to any proposal of marriage without the sanction of her mother and eldest brother. Even the little one was

gravely bidden to be loyal to his brother, obedient to his mother, and true to his religion. He showed later that he was not too young to understand. While Charles remained at Hampton Court, he was allowed from time to time to "refresh himself with the company" of the children, and, no doubt, often played with them in the big and beautiful gardens there.

After his attempted escape, when he was immured in Carisbrooke Castle, the three children were brought to St. James's Palace, in the grounds of which was played that historic game of hide-and-seek, by means of which James got away, and was spirited over to The Hague to his sister. After this the Earl of Northumberland refused to have the responsibility of the other two any longer, and it was thought desirable they should be in the country, where they would be less likely to be made a centre for disaffection; so they were sent to the earl's sister, the Countess of Leicester, at Penshurst.

This was a happy change for the little princess. The countess treated them with the tenderness of a mother, and the respect due to the children of her sovereign, while her eldest daughter, the young widow, Lady Sunderland, became the object of Elizabeth's enthusiastic devotion. No doubt the little girl enjoyed playing with Dorothy's babies, "Poppet" and Penelope and the baby Harry, born since his father's death.

At the time of their father's execution they must have been at Leicester

House, in London, as they were taken to receive his last blessing and farewell, he being lodged at St. James's the night before. Elizabeth was then of an age to understand the terrible sorrow, and she wept most bitterly, her little brother crying, too, to see her cry. The king took them both on his knee, and admonished them of their duty and loyal observance to the queen, their mother, and to their eldest brother. "They commanded their tears, and gave him," says Sir Thomas Herbert, an eye-witness, "such pretty and pertinent answers as drew tears of love and joy from his eyes; and then, praying God Almighty to bless them, he turned about, expressing a tender and fatherly affection. Most sorrowful was this parting, the young princess shedding tears and crying most lamentably, so as moved others to

pity that formerly were hard-hearted; and at opening the bedchamber door, the king returned hastily from the window and kissed 'em and blessed 'em; so parted."

Poor little maid! No doubt Lady Leicester and her daughter did their best to comfort her, but she drooped; and, indeed, their kindness was her undoing, for rumour coming to the Parliament that Charles Stuart's children were treated with too much respect, Mr. Speaker Lenthall went down to Penshurst to investigate, and finding them served at a table apart, their removal to their father's former prison at Carisbrooke was ordered; and there, one Sunday, not long after, in one of those gloomy rooms, the little princess, who had been suffering from a feverish attack, was found dead, her cheek resting on her open Bible.

A KING ON KINGSHIP—FROM SHAKESPEARE

Shakespeare's historical dramas abound in noble speeches, which he places in the mouths of his heroes. We could wish that some of these fine speeches had actually been uttered; but, as no king has ever had the genius of a Shakespeare, we have to regard them as the poet's index to the characters he seeks to picture in our minds. He presents to us in Henry V. a splendid heroic figure, the very breath of Old England; and on the eve of the battle of Agincourt, when the king moves among his followers dressed as a common soldier and hears them say that whatever misfortune may befall them the king would be responsible for it, he is supposed to make this soliloquy, or speech, to himself. When Henry asks "What are thy rents?" he is supposed to be addressing the idol, or god, of Ceremony, and asking of it what are the advantages it brings. Towards the end of the soliloquy various classical allusions are used, such as the "eye of Phœbus," which means the sun, and "Elysium," an imaginary heaven of the Greeks; while "Hyperion" means the rising sun.

Upon the king! Let us our lives, our souls,
Our debts, our careful wives,
Our children, and our sins, lay on the king.
We must bear all. O hard condition!
Twin-born with greatness, subject to the breath
Of every fool whose sense no more can feel
But his own wringing! What infinite heart's ease
Must kings neglect that private men enjoy!
And what have kings that privates have not, too,
Save ceremony, save general ceremony?
And what art thou, thou idle ceremony?
What kind of god art thou, that suffer'st more
Of mortal griefs than do thy worshippers?
What are thy rents? What are thy comings-in?
O ceremony, show me but thy worth!
What is thy soul of adoration?
Art thou aught else but place, degree, and form,
Creating awe and fear in other men?
Wherein thou art less happy, being fear'd,
Than they in fearing.
What drink'st thou oft, instead of homage sweet,
But poisoned flattery? O! be sick, great
greatness,
And bid thy ceremony give thee cure!
Think'st thou the fiery fever will go out
With titles blown from adulation?
Will it give place to flexure and low bending?
Canst thou, when thou command'st the
beggar's knee,

Command the health of it? No, thou proud
dream

That play'st so subtly with a king's repose;
I am a king that find thee; and I know
'Tis not the balm, the sceptre and the ball,
The sword, the mace, the crown imperial,
The inter-tissued robe of gold and pearl,
The farced title running 'fore the king,
The throne he sits on, nor the tide of pomp
That beats upon the high shore of this world,
No, not all these, thrice-gorgeous ceremony,
Not all these, laid in bed majestical,
Can sleep so soundly as the wretched slave,
Who, with a body filled and vacant mind,
Gets him to rest, crammed with distressful bread;
Never sees horrid night, the child of hell;
But, like a lackey, from the rise to set,
Sweats in the eye of Phœbus, and all night
Sleeps in Elysium; next day, after dawn,
Doth rise, and help Hyperion to his horse,
And follows so the ever-running year,
With profitable labour, to his grave;
And, but for ceremony, such a wretch,
Winding up days with toil, and nights with sleep,
Had the fore-hand and vantage of a king.
The slave, a member of the country's peace,
Enjoys it; but in gross brain little wots
What watch the king keeps to maintain the peace,
Whose hours the peasant best advantages.

THE LAST DAYS OF THE PRINCESS ELIZABETH



After the execution of Charles the First, his daughter, Princess Elizabeth, was imprisoned with her brother Henry in Carisbrooke Castle. The princess had always been delicate, and at Carisbrooke she caught a fever that ended her life on September 8, 1650. In this beautiful picture, by Miss Margaret Dicksee, we see the princess in her closing days with her little brother. The sands in the hour-glass have almost run out, a symbol of the ebbing life of the princess

THE OVERTHROW OF NAPOLEON—BY VICTOR HUGO.

Victor Hugo, one of the greatest of the French writers of romance, is seen at his best, perhaps, in his wonderful story called "*Les Misérables*." This is a vast and fascinating work, for which the word "story" is scarcely adequate. It is a sort of history of certain imaginary characters, doomed by Fate to unhappiness; but it contains many moving and touching scenes of the most curiously varied nature. As illustrating the power of the author to describe in swift and striking phrases a great historic scene, which is enacted again with all its terror in his vivid imagination, no better passage could be chosen than his famous description of the fatal charge of the French cavalry which lost the battle of Waterloo to Napoleon, leaving him a broken man with no hope of wearing a crown again. We are to remember, in reading this, that it is not an actual account of a historic event, but an imaginative picture, which is doubtless more like the real thing than any cold statement of facts could ever be. That is the genius of great imaginative writing: without caring for accuracy of details, it leaves our mind with an impression of truth.

ON the morning of Waterloo, Napoleon was satisfied.

He was right; the plan of battle which he had conceived was indeed admirable.

Napoleon was accustomed to look upon war fixedly; he never made, figure by figure, the tedious addition of details; the figures mattered little to him, provided they gave this total: Victory. Though beginnings went wrong, he was not alarmed at it—he who believed himself master and possessor of the end; he knew how to wait, believing himself beyond contingency, and he treated destiny as an equal treats an equal. He appeared to say to Fate: "Thou wouldst not dare."

About four o'clock the English line staggered backwards. All at once only the artillery and the sharpshooters were seen on the crest of the plateau; the rest disappeared. The regiments, driven by the shells and bullets of the French, fell back into the valley now crossed by the cow-path of the farm of Mont Saint Jean. A retrograde movement took place; the battle front of the English was slipping away. Wellington gave ground. "Beginning retreat!" cried Napoleon.

At the moment when Wellington drew back, Napoleon started up. He saw the plateau of Mont Saint Jean suddenly laid bare, and the front of the English army disappear. It rallied, but kept concealed. The emperor half rose in his stirrups. The flash of victory passed into his eyes. Wellington hurled back on the forest of Soignies and destroyed; that was the final overthrow of England!

The emperor then, contemplating this terrible turn of fortune, swept his glass for the last time over every point of the battlefield. His Guard, standing behind with grounded arms, looked up to him with a sort of religion. He was reflecting; he was examining the slopes, noting

the ascents, scrutinising the tuft of trees, the square rye-field, the footpath; he seemed to count every bush.

He bent over and spoke in an undertone to the guide Lacoste. The guide made a negative sign of the head, probably treacherous.

The emperor rose up, and reflected. Wellington had fallen back. It remained only to complete this repulse by a crushing charge.

Napoleon, turning abruptly, sent off a courier at full speed to Paris to announce that the battle was won. Napoleon was one of those geniuses who rule the thunder. He had found his thunderbolt.

He ordered Milhaud's cuirassiers to carry the plateau of Mont Saint Jean.

They were 3,500. They formed a line of half a mile. They were gigantic men on colossal horses. There were twenty-six squadrons . . . Aide-de-camp Bernard brought them the emperor's orders. Ney drew his sword, and placed himself at their head. The enormous squadrons began to move.

Then was seen a fearful sight.

All this cavalry, with sabres drawn, banners waving, and trumpets sounding, formed in column by division, descended with an even movement, and, as one man, sank into that formidable depth where so many men had already fallen, disappeared in the smoke, then, rising from this valley of shadow, reappeared on the other side, still compact and serried, mounting, at full trot, through a cloud of grape emptying itself upon them, the frightful acclivity of mud of the plateau of Mont Saint Jean.

They rose, serious, menacing, imperturbable. In the intervals of the musketry and artillery could be heard the sound of this colossal tramp.

Behind the crest of the plateau, under cover of the masked battery, the English infantry, formed in thirteen squares, two

battalions to the square, and upon two lines—seven on the first, and six on the second—with musket to the shoulder, and eye upon their sights, waited calm, silent, and immovable. They could not see the cuirassiers, and the cuirassiers could not see them. They listened to the rising of this tide of men. They heard the increasing sound of three thousand horses, the alternate and measured striking of their hoofs at full trot, the rattling of the cuirasses, the clicking of the sabres, and a sort of fierce roar of

very feet of the horses, two fathoms deep between its double slope. The second rank pushed in the first, the third pushed in the second; the horses reared, threw themselves over, fell upon their backs, and struggled with their feet in the air, piling up and overturning their riders; no power to retreat; the whole column was nothing but a projectile. The force required to crush the English crushed the French. The inexorable ravine could not yield until it was filled; riders and horses rolled in together



THE SUNKEN ROAD AT WATERLOO

This picture is from the engraving by Henry Graves & Sons; that on page 96 is by permission of the Oldham Corporation

the coming host. There was a moment of fearful silence, then, suddenly, a long line of raised arms brandishing sabres appeared above the crest, with casques, trumpets, and standards, and three thousand faces with grey moustaches, crying, "Vive l'Empereur!" All this cavalry debouched on the plateau, and it was like the beginning of an earthquake.

All at once, tragic to relate, at the left of the English, and on our right, the head of the column of cuirassiers reared with a frightful clamour. Arrived at the culminating point of the crest, unmanageable, full of fury, and bent upon the extermination of the squares and cannons, the cuirassiers saw between themselves and the English a ditch—a yawning grave. It was the sunken road of Ohain. It was a frightful moment. There was the ravine, unlooked for, yawning at the

pell-mell, grinding each other, making common flesh in this dreadful gulf, and when this grave was full of living men, the rest marched over them and passed on. Here the loss of the battle began.

A local tradition, which evidently exaggerates, says that two thousand horses and fifteen hundred men were buried in the sunken road of Ohain.

Napoleon, before ordering this charge of Milhaud's cuirassiers, had examined the ground, but could not see this hollow road, which did not make even a wrinkle on the surface of the plateau. Warned, however, and put on his guard by the little white chapel which marks its junction with the Nivelles road, he had put a question to the guide Lacoste. The guide had answered No. It may almost be said that from this shake of a peasant's head came the catastrophe of Napoleon.

THE NEXT STORY OF FAMOUS BOOKS IS ON PAGE 5432.

ONE OF CANADA'S RIVERS



One of the most beautiful rivers of Canada is the Kamanistiquia. We show you here its more restless appearance, as it dashes over stones and apparently struggles to be free. Notice the different strata in the rocky banks.



Here is the same river, though you can hardly believe it. This quiet and placid stream with the grain elevators along its banks and the steamers on its waters seems entirely different from the restless stream above. The town is Fort William, Ontario, which is a centre of the grain trade.

Pictures copyright by H. C. White Co.

THE NEW WEST

CANADA, extending from the Atlantic to the Pacific, is more than equal in size to the United States and covers an area of 3,745,000 square miles — one-twelfth of the land surface of the earth. Of all the countries now in the stage of development none attracts more attention than the Canadian Northwest. This vast inland empire stretches from the Rocky Mountains on the west to the wooded country of New Ontario on the east and from the American boundary to a point yet to be determined on the north. The provinces which make up this area are vast plains, three times the size of the German Empire and five times larger than Great Britain and Ireland. The whole area is watered and drained by three great river systems. The rivers make one vast network of intersecting valleys. The provinces, Manitoba, Saskatchewan and Alberta, on account of the productiveness of their fertile prairies, are called the Granary of the Empire.

CLIMATE

Many people have wrong impressions regarding the climate of this western country. It will be interesting to know that Edmonton has as high an average temperature as St. Paul, fifteen hundred miles south. Further, that Northern Michigan and Manitoba have similar temperatures and that as we go north and west the influence of the winds from the Pacific have a marked effect in modifying the climate. The Peace River valley, seven hundred miles north of the American boundary, has for the past twenty years grown a superior quality of wheat.

The soil of this great grain belt, although of the richest loam, would never have been so productive had it not been for the climate. The blessings of the climate are threefold. It consists in pure air, cool temperature and low precipitation. The pure air pre-

vents too rapid decay of the vegetable matter in the soil and thus prevents a great amount of waste. This is one explanation of the great fertility of the soil. The cool temperature of the summer nights is responsible for the large relative yields of wheat. Raise the temperature of the summer days and nights and the yield of grain will be proportionally reduced. The cool temperature is one of the agricultural glories of the land. The light precipitation grows the crops and does not destroy them when grown. Nearly every portion of the wheat belt has a rainfall of fifteen or twenty inches; enough to grow good crops on land that is properly cultivated.

PIONEER DAYS

Twenty years ago, few men went into the Hudson's Bay Company's country except trappers and hunters. North of the Canadian Pacific Railway was considered the fur-trader's world, a world of adventure, of chance and of danger. Fearing the mystery and cold of the northland, the pioneers clung to the south and settled near the boundary line. This gave impulse to Regina, Moose Jaw, Calgary and Lethbridge. When it became known that the climate of the north was tempered by warm Chinook winds and that the soil was very fertile, the great wave of population broke its barriers and poured into the fertile valleys of the north.

EXTENT OF WHEAT AREA

From the point of development the West is only in its first infancy; out of 200,000,000 acres of wheat land, only 8,395,400 were under cultivation in 1910. Nearly all of this land has been cultivated for the first time since 1898, prior to which the wheat-growing possibilities were not recognised. In spite of this small acreage Canada occupies the fifth place among the wheat-producing countries of the world. It does not require a great imagination to see

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Canada wresting from the United States her place as the world's greatest wheat-producing country. This will follow as soon as the remaining millions of Canada's fertile acres are brought under cultivation — a result which is only a matter of time and development.

RAILROADS

The trend of settlement follows the construction of railroads. At present, there are three great systems, the Canadian Pacific, the Grand Trunk Pacific and the Canadian Northern. Every year, these systems build hundreds of miles of new road, opening up to the settler tens of thousands of acres of new wheat lands. The time is not far distant when the whole wheat belt will be one great network of railroads.

MANITOBA

Manitoba is the most easterly of the prairie provinces. The first settlement was made in 1811 at Fort Garry by Lord Selkirk's colony of Scots. Colonisation was slow and when Manitoba became a province in 1870, its population was only 1,700. This, according to a report of the Dominion census bureau in 1909, had increased to 484,519.

The province has an area of 74,000 square miles with a considerable part in water surface, as Lakes Winnipeg, Manitoba and Minnepegosis are within its boundaries. Its eastern part is thickly wooded, sparsely settled, but rich in mineral wealth. The south, a level fertile prairie, is thickly settled and has the appearance of the old established provinces of the East. The rich rolling country of the west and north is in places only sparsely settled. Of the arable land only about one sixth has been brought under cultivation.

All of the towns and most of the villages possess telephone and electric light plants. The province has an excellent public school system. The winters are cold but as the air is pure and dry a person does not mind them as much as those of the East.

"Manitoba hard" wheat is famous in the markets of Europe. The deep rich loam of the prairie produces the flinty kernel so much prized by millers. The wonderful thing about the soil is that its fertility lasts. There are old farms

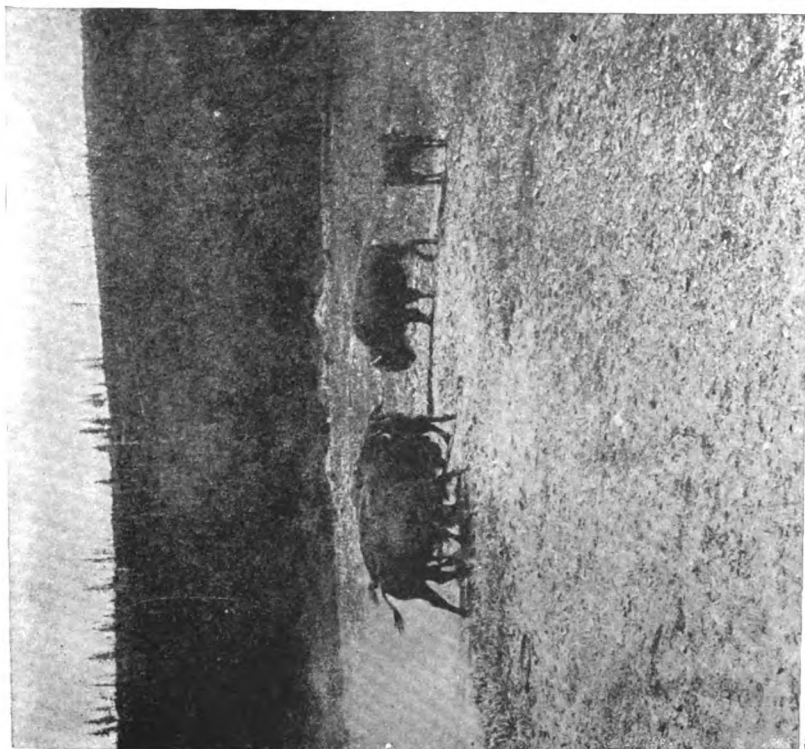
that have been cropped for thirty years and still produce as regularly as the changing seasons twenty bushels per acre of the finest hard wheat. For many years Manitoba was treated exclusively as a wheat-growing country but now dairying and stock-raising are attracting much attention.

WINNIPEG THE WONDER CITY

No other city of its age and size has been advertised throughout the world as Winnipeg, the capital of Manitoba. The city has risen where once old Fort Garry slumbered. Scarcely more than a generation ago it was the great fur-trading post of the Hudson's Bay Company. Its population has increased from 1700 in 1870 to 175,000 in 1911 and during that period this small hamlet has grown to be the third city in the Dominion in size and in volume of business.

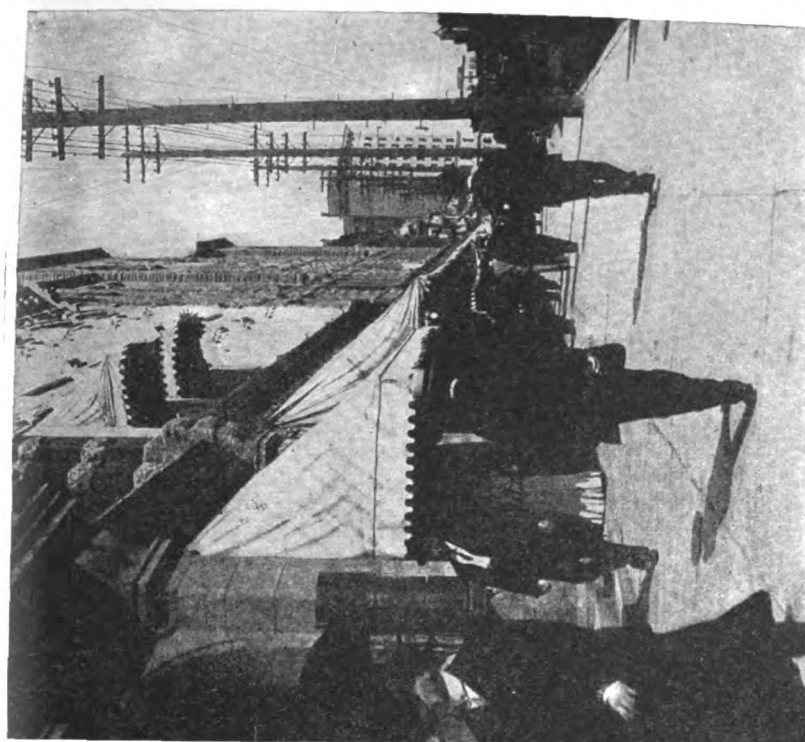
Winnipeg is the commercial centre of the West. As a wheat-shipping point it exceeds Chicago and Duluth. The city is the distributing centre for the wholesale and jobbing trade and every branch of business is represented. All the principal banks have branches and as a manufacturing city it ranks third in Canada. There are extensive stock-yards and immense abattoirs for slaughtering cattle for shipment to Europe and other markets. The yards of the Canadian Pacific Railway contain one hundred and twenty miles of track and are the largest in the world operated by one system. The city is the great railroad centre of the West. The three great railway systems radiate from it and connect the city with the East and the West.

Winnipeg is the most cosmopolitan city in Canada. Less than one-half of the population are Canadians and over thirty different languages are spoken on the streets. Icelanders have taken the foremost place among the adopted peoples. They have forged to the front in colleges and the university and in 1909 an Icelandic student was chosen as Rhodes scholar. The Scandinavians, industrious, honest and thrifty, have proven to be the best immigrants in Canada. The Galicians are the most troublesome of the foreigners.



The American buffalo, or more properly bison, is almost extinct, though millions once roamed the prairies. A small herd still exists in Alberta, and sometimes rumours that thousands exist further north in the unexplored country are heard, but seem to lack foundation.

Photographs copyright by H. C. White Co.



It is hard to believe that this city of Winnipeg with all the modern improvements including tall buildings did not exist forty years ago. Then there was only a little village around Fort Garry, which was only a fair trading post. Now it is one of the busiest cities in the world.

The city has splendid educational facilities. The public school system embraces grammar, high and normal schools. Several colleges and the University of Manitoba give an excellent opportunity for the study of the higher branches. In order to assist in moulding the foreigners into good citizens a very efficient night school system is maintained.

Brandon, a very attractive city of fourteen thousand people, is situated on the Canadian Pacific Railway, one hundred and thirty-three miles west of Winnipeg. The city is surrounded by a magnificent wheat country and is the distributing point for all kinds of goods. With large business blocks, fine churches, and residences it compares very favourably with Eastern cities.

SASKATCHEWAN

Saskatchewan, first constituted a province in 1905, is the central agricultural province of the West. It lies between the American border and 60th parallel of north latitude and between 102° and 110° longitude. This great rectangle contains 250,650 square miles, of which a large part is capable of producing the finest quality of wheat.

THE FERTILE SOIL

The first foot of soil of the West is the great natural heritage. It is worth more than all the minerals in the mountains from Alaska to Mexico. Next in importance is the subsoil, for unless it be of good value there is a neutralisation of the soil above. The worth of a soil and subsoil cannot be measured in dollars. Its value is the amount of nitrogen, phosphoric acid and potash which it contains, in other words, its power of producing plant growth. One acre of average soil in the Canadian West is worth more than twenty acres of average soil along the Atlantic seaboard. The man who cultivates the former can grow twenty successive crops without much diminution in yield, whereas the person who tills the latter in order to have such a rotation of good crops must pay for fertilisers half as much per acre as would buy an acre in Saskatchewan.

THE CLIMATE

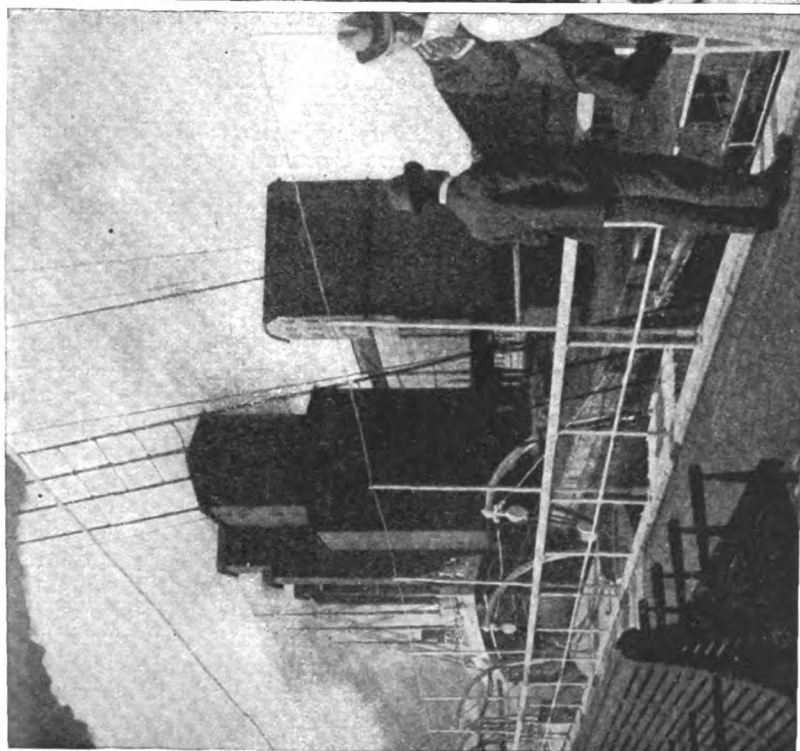
The days in summer are long, bright and hot, but the nights are delightfully cool. The air is pure and dry, so a person does not mind the heat. The winter, which sets in about the first of December, continues without interruption until the end of March. The snowfall is not nearly so heavy as it is in Montreal. One great advantage is that June and July, the two great growing months, are the wettest of the year. The rainfall is just sufficient to furnish moisture for the growing crops. The province lies in the same latitude as the British Isles, Denmark, the Netherlands and Belgium. Edinburgh, Scotland, is farther north than any of the settled parts of Saskatchewan, and St. Petersburg, Russia, is in the same parallel of north latitude as the northern boundary of the province.

Miles of railroads are every year being built through the province and thousands of acres are added to the cultivated area. Not only wheat but all kinds of grains are raised. Cattle-raising is an important industry, and dairying is commencing to attract attention. There is an abundance of coal through the north and many other metals have been discovered. The north has valuable forests and the rivers and streams are filled with all kinds of fish.

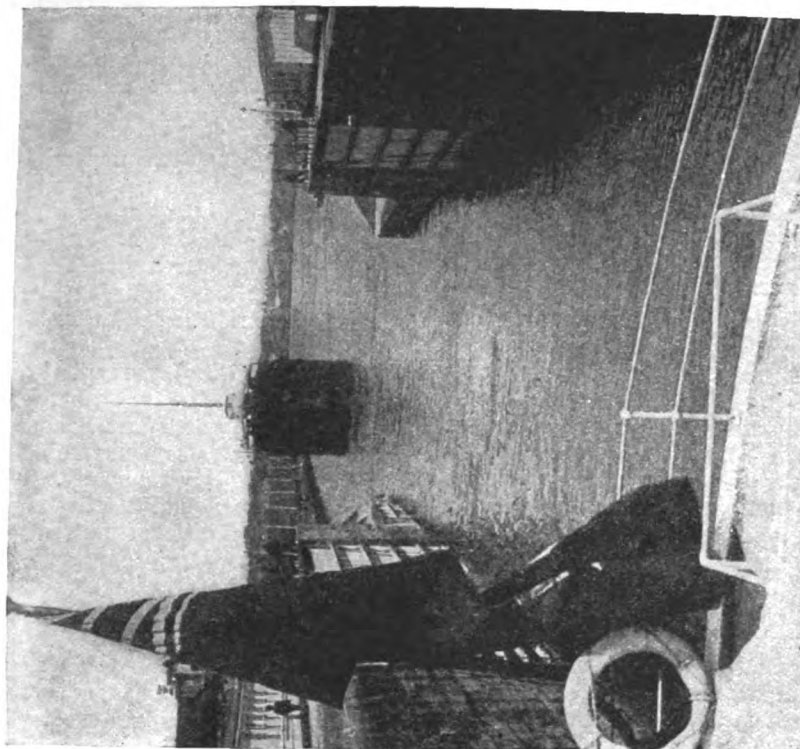
Regina (17,000), the capital, and Moose Jaw (15,000) are flourishing cities on the main line of the Canadian Pacific Railway. They are surrounded by a fine wheat country and are growing rapidly. Saskatoon (12,000), a city of a few years' growth, is on the main line of the Grand Trunk Pacific. It is the seat of the Provincial University and the chief distributing point for a large section of the country. Prince Albert (8,000), near the centre of the province, on the Saskatchewan River and a branch of the Grand Trunk Pacific, is a rapidly growing town.

ALBERTA

Alberta, first made a province in 1905, is larger than either Germany or France. It has an area of 253,540 square miles and a population considerably under 400,000. The province lies between the



Wherever you go in Central and Western Canada you will realize how important the wheat crop is. These tall towers beside the boat are the grain elevators which raise the wheat so that it can be handled more easily. This picture was made at Owen Sound in Lake Huron.



We have told you a great deal about canals in this book. Here is one of the important waterways of the New World. It is the Sault Ste. Marie Canal between Lakes Superior and Huron. The river which connects these two lakes is not safe for boats and this canal was built. Through it much of the commerce of the West passes.

Pictures copyright by H. C. White Co.

American boundary and the 60th parallel, while on the east and the west it is bounded by Saskatchewan and British Columbia.

Southern Alberta is the ideal ranching country. It was the winter home of the buffalo and is now the region of large ranches. Around Calgary the rainfall is not sufficient for regular crops; it is an open treeless prairie covered with wild grasses. At present much of this land is irrigated and bountiful crops are produced. The southeastern part of the province is valuable wheat land.

CLIMATE

The climate is always dry in winter. The snowfall is light and lies dry as sand under the feet. The air is clear and the sun is bright throughout the winter days. Spring is early; it opens at Edmonton about the same time as it does at Toronto, Ontario. In summer, the days are hot and the nights are always cool.

Horses and cattle run out all winter, unhoused and unfed. In the East, the grass, if left uncut, seeds, then decays and becomes worthless in the rain; but in the northwest, the prairie grass is self-cured by the dry weather of the fall and is just as good as standing hay. The winds blow off the light falls of snow and uncover the food for horses and cattle. This makes Alberta the ideal country for ranching.

CHINOOK WINDS

The climate is greatly influenced by the Chinook winds. These are warm and dry winds blowing with considerable force from time to time through the winter. They evaporate every vestige of snow from the prairies and take the snow without leaving a trace of dampness on the smooth surface of a stone. Their influence is felt as far east as Regina and far to the north but is most pronounced in Alberta.

RESOURCES

The northwest corner is true forest land while through the centre and parts of the north there are tracts of dense woods. A large part of the province is underlaid by coal beds, yielding coal in quality from lignite to anthracite. Gold in paying quantities is found in the northern part and also

galena and silver. Natural gas and petroleum have been discovered in many places. When the province is surveyed other minerals will likely be found.

CITIES

Calgary (45,000), the commercial metropolis of the middle west, is situated on the main line of the Canadian Pacific Railway. The Rocky Mountains are visible on the western horizon. The city is a great manufacturing place as well as the distributing point for a large area of country.

Edmonton (26,000), the capital of the province, is located on the Saskatchewan River and the Grand Trunk Pacific. In 1901 this place was a small trading post of the Hudson's Bay Company. It has become a large manufacturing city as well as the chief distributing centre for a large fertile country. Across the river is Strathcona, a flourishing city and the seat of the new Provincial University.

Medicine Hat (7,000) is located to the east of Calgary on the Canadian Pacific Railway. It has natural gas and is rapidly becoming a great manufacturing town. Lethbridge is the centre of an extensive coal-mining district. The largest coal mines in Western Canada are located here. There are more than a score of new towns varying in size from fifteen hundred to two thousand people. Five years ago the sites of many of these towns were virgin prairies.

These three prairie provinces form the new West. This vast empire contains millions of acres of the finest agricultural and grazing lands and only a small per cent. has as yet been brought under cultivation. The development of these provinces is one of the remarkable events of the twentieth century. With such undeveloped resources is it a wonder that no other country is receiving such attention? Settlers from all parts of the world are rushing to these virgin prairies. During the past seven years over half a million of immigrants from the United States have crossed the line into Canada. Towns spring up in a night and in a year become full fledged cities. It seems, the prophecy that the twentieth century belongs to Canada will be fulfilled.

HOW WE GUARD OUR TREASURES

WHEN we are leaving home for a while, and cannot take our valuables with us, we can lock them up in our own safe or strong-room, or send them to be guarded in the strong-room of a bank or some safe-deposit.

These strong-rooms are castles of security, before whose doors Aladdin himself might rub his lamp and utter his charm in vain. They are little cities of iron and steel and fireclay, with marvellous locks, and are guarded night and day by armed men. The walls of the buildings are so strong that no burglar's drill could break through. Within these walls are all sizes of strong-rooms and safes, made of metal plates of varying hardness, so that if by some chance a burglar did get in and set to work on them with his drill, he certainly would be foiled.

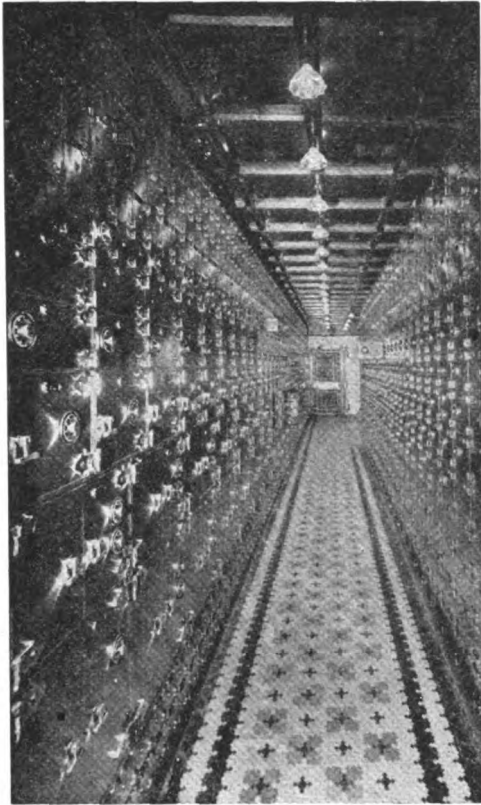
On the outside he would find a steel of one degree of hardness, to pierce which would require a drill of a certain temper. If he bored through that thickness he would come upon a layer of harder steel, which would smash his drill, and probably defy all his efforts. Supposing, however, that he managed to pierce this also, then he would come to a third plate of steel of still different temper, which would resist the drill that had come through the second layer. All this would take so long that he would be discovered by the guards.

Supposing, however, that a dishonest man got a key of one of these safes or strong-rooms in the daytime, and went boldly in to open the safe. He could not do it alone. His key might turn the lock, but the door would not open until one of the guards turned his key in the lock also. It requires two keys to undo

one of these doors, and the second is always kept by the guard. The guard himself is helpless unless he follows certain rules. The locks are governed by a clockwork arrangement, so that they can be opened only at certain hours.

If we trust to the safe at home, we have a wonderful means of defence. The lock is so splendidly made that no burglar can "pick" or force it. He can only drill a hole through the safe's iron walls, and that takes time, so that he is very liable to be caught. But what if a

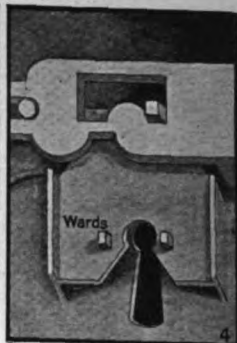
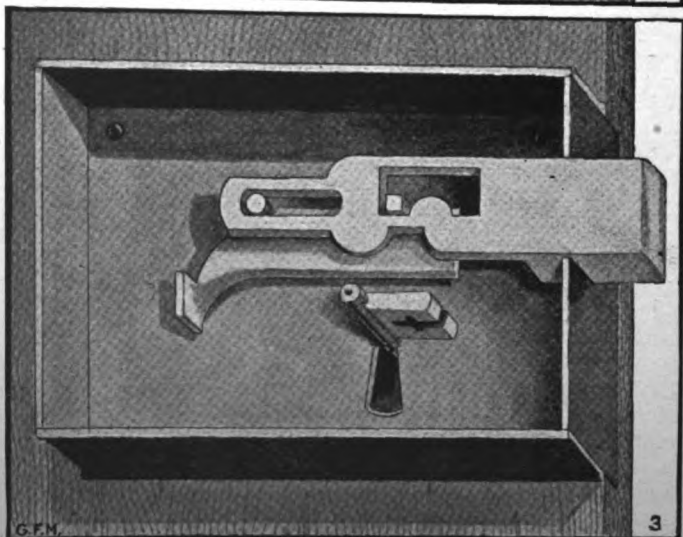
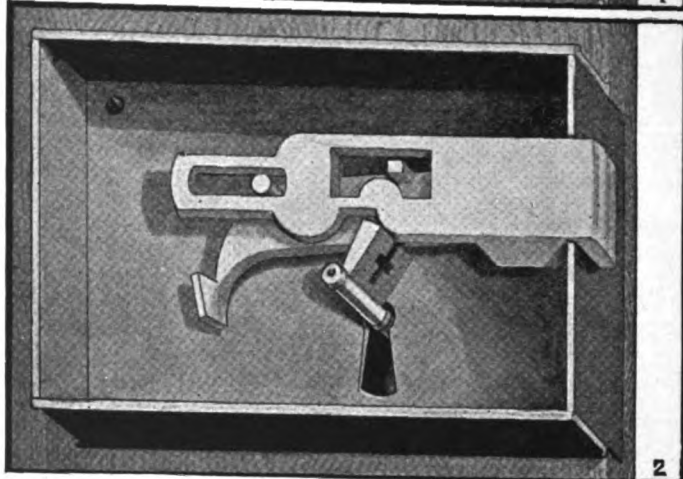
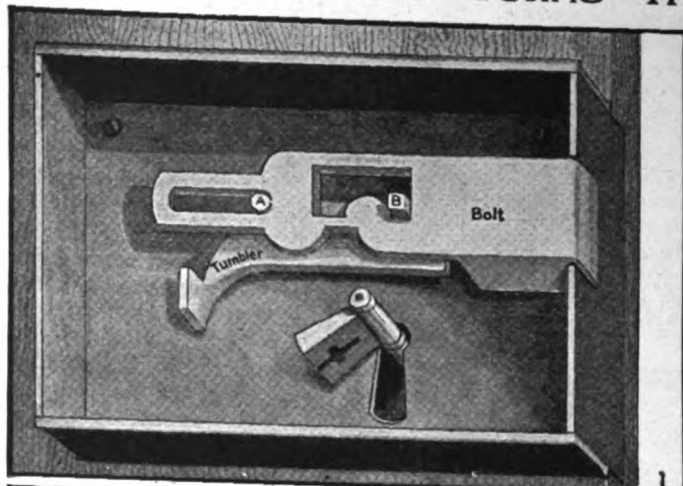
fire should break out? The safe will guard its contents. Between the massive iron plates which form its walls there is a packing of sawdust. In this sawdust tubes of liquid are placed. When the heat of the fire becomes great, these tubes dissolve, and flood the sawdust with water or chemicals, thus enclosing the contents of the safe in a cold poultice through which the heat is quite unable to penetrate. Then there are locks that can be locked by any one of millions of keys, but can be unlocked only by the one that fastens them. To save the trouble of having all these keys we can have one key, and many little parts to fit on to it.



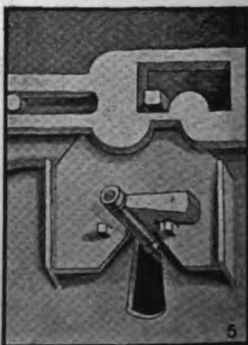
Inside a great safe-deposit, where deeds and gold worth millions of pounds are deposited in strong-rooms and safes.

We can leave all but one of these parts in the safe. The one that we want we take out, use it with the key to lock the safe, hang up the key, and go off, carrying only the little part with us. Anybody can use the key, but we have in our pocket the only thing in the world that will make the key turn the lock. Such locks as these, with their wonderful machinery, are a marvellous development from the simple tumbler lock shown on p. 5372, that has been used for hundreds of years, and is still being used.

HOW THE KEY TURNS THE LOCK

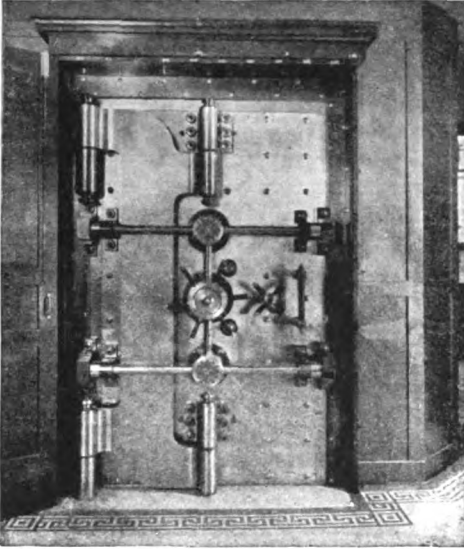


Locks are as old as civilisation, and were first made of wood. It was in the reign of Alfred the Great that locks were first manufactured in England, but there was little improvement in their construction until the end of the eighteenth century. Since that time there have been marvellous developments, until we have the elaborate and costly locks shown on page . Here we see how the common tumbler-lock works. This is the ordinary cheap lock found on cupboards and drawers. As shown in this picture, a metal "tumbler" works on a pivot, A. A stud, B, projects from the tumbler and fits into a notch in the bolt, preventing the bolt from moving either way. But when the key is turned, as seen in picture 2, the "bit," or flat part of the key, lifts the tumbler and enables the bolt to be pushed along as seen in picture 3. As soon as the key is turned right round the tumbler falls, its stud fitting into a second notch in the bolt and holding it firm. Picture 4 shows the wards, or projections, which prevent any key but one specially cut to fit the lock from turning round, and in picture 5 we see how the right key can be turned over the wards.

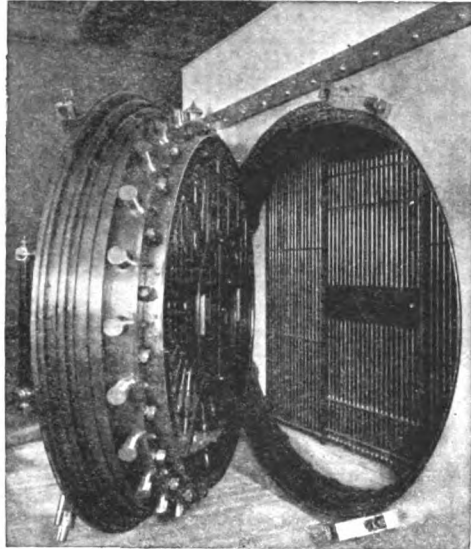


THESE PICTURES SHOW THE INSIDE OF THE LOCK OF AN ORDINARY DOOR

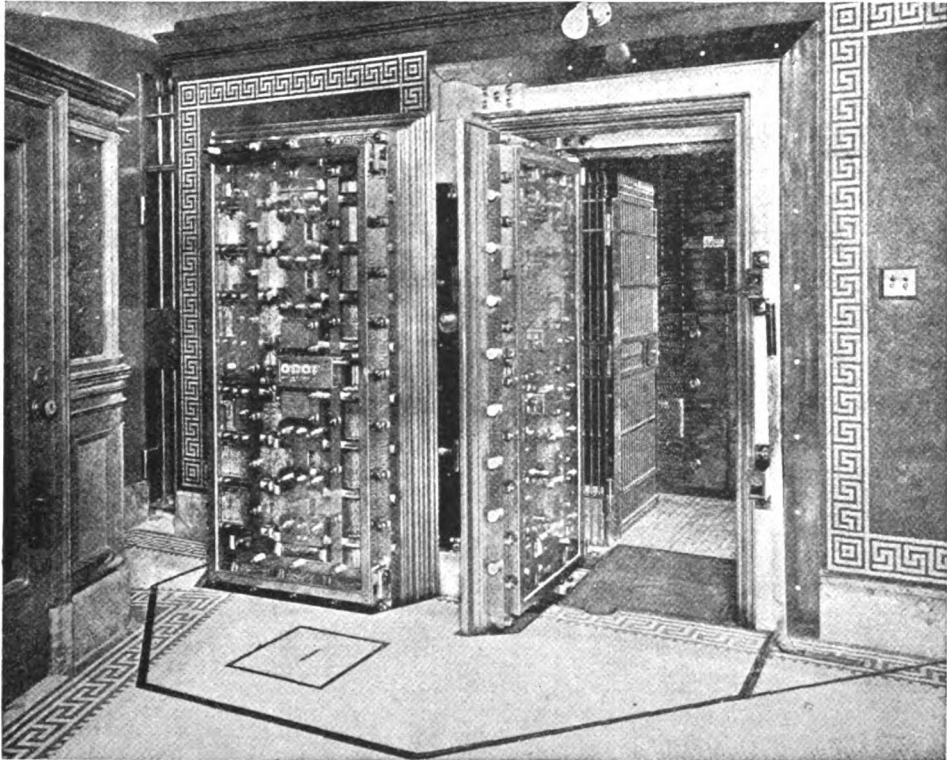
DOORS THAT COST THOUSANDS OF DOLLARS



Our great-grandfathers kept their treasures in a strong box made of wood bound round with iron, but to-day a skilled burglar would laugh at such a treasure-store, and the banks build wonderful burglar-proof and fire-proof steel vaults, with doors like that shown in this picture, that often weigh more than twenty tons each.



Sometimes these doors are round in shape. They have a marvellous system of bolts and fastenings, and the lock can be set to open at a certain time in the future. Then, if once the door is locked, no human power can open it till the fixed time comes round. At the exact hour certain levers fall and then the door may be opened.



Here is one of the strongest doors ever built. It is a double door—that is, the door seen on the right closes and then the one on the left is shut over it. This door cost more than five thousand dollars. The key has a dial upon it with a number of letters that can be arranged in thousands of ways. Once the door is locked, it can never be opened unless the letters on the key are arranged in exactly the same way as they were when the door was locked.

THE NEXT STORY OF FAMILIAR THINGS BEGINS ON PAGE 5399.

ONLY A BOY

It cannot truly be said that these lines are "poetry." They are poetic in form, they rhyme, but they lack rhythm or beauty of movement. Their merit is that they give a quick and happy outline of a good healthy type of boyhood.

ONLY a boy, with his noise and fun,
The veriest mystery under the sun ;
As brimful of mischief, and wit and glee,
As ever a human frame can be,
And as hard to manage as—what ? ah, me !
'Tis hard to tell,
Yet we loved him well

Only a boy with his fearful tread,
Who cannot be driven, must be led.
Who troubles the neighbour's dogs and cats,
And tears more clothes, and spoils more hats,
Loses more kites, and tops, and bats,
Than would stock a store
For a year or more.

Only a boy, with his wild, strange ways,
With his idle hours, or his busy days,
With his queer remarks and his odd replies,
Sometimes foolish and sometimes wise.
Often brilliant for one of his size,
As a meteor hurled
From the planet world.

Only a boy, who will be a man,
If Nature goes on with her first great plan—
If intemperance, or some fatal snare,
Conspire not to rob us of this our heir,
Our blessing, our trouble, our rest, our care,
Our torment, our joy !
Only a boy.

THE BAILIFF'S DAUGHTER

Here we have a well-known and typical old English ballad. The story it tells is of the simplest, for in the days when ballads were popular, people were more simple-minded than they are in our time. It is a quaint and unlikely story, but its simplicity has a charm for us readers of a later day. It is difficult to imagine that the London apprentice let seven long years go by without seeing his sweetheart at Islington ! But we must not expect common-sense views of life from these old ballads, which were meant only to entertain.

THERE was a youth, a well-beloved youth,
And he was a squire's son,
He loved the bailiff's daughter dear
That lived in Islington.

Yet she was coy and would not believe
That he did love her so,
No, nor at any time would she
Any countenance to him show.

But when his friends did understand
His fond and foolish mind,
They sent him up to fair London
An apprentice for to bind.

And when he had been seven long years,
And never his love could see :
Many a tear have I shed for her sake,
When she little thought of me.

Then all the maids of Islington
Went forth to sport and play,
All but the bailiff's daughter dear ;
She secretly stole away.

She pulled off her gown of green
And put on ragged attire,
And to fair London she would go
Her true love to enquire.

And as she went along the high road,
The weather being hot and dry,
She sat her down upon a green bank,
And her true love came riding by.

She started up, with a colour so red,
Catching hold of his bridle-rein ;
"One penny, one penny, kind sir," she said,
"Will ease me of much pain."

"Before I give you one penny, sweetheart,
Pray tell me where you were born."
"At Islington, kind sir," said she,
"Where I have had many a scorn."

"I prythee, sweetheart, then tell to me,
O tell me whether you know,
The bailiff's daughter of Islington."
"She is dead, sir, long ago."

"If she be dead, then take my horse,
My saddle and bridle also ;
For I will unto some far country,
Where no man shall me know."

"O stay, O stay, thou goodly youth,
She standeth by thy side ;
She is here alive, she is not dead,
And ready to be thy bride."

"O farewell grief, and welcome joy,
Ten thousand times therefore ;
For now I have found mine own true love,
Whom I thought I should never see more."

TIME

Sir Walter Scott gives a fine sense of mystery and awe to the grim figure of old Father Time in this little poem. Time is always shown to us an old, old man with an hour-glass and a scythe: the one to suggest the passing of the hours, and the other the reaping of Time's harvest, which means the end of life. Carle is an old-fashioned word, still used in Scotland, to denote an elderly and rather rough sort of man. Originally it meant simply man, and the Saxon name Carl, from which we get Charles, came from it.

"WHY sitt'st thou by that ruined hall,
Thou aged carle so stern and gray ?
Dost thou its former pride recall,
Or ponder how it passed away ?"

"Know'st thou not me ?" the Deep Voice
cried ;

"So long enjoyed, so oft misused—
Alternate, in thy fickle pride,
Desired, neglected, and accused !

"Before my breath, like blazing flax,
Man and his marvels pass away !
And changing empires wane and wax,
Are founded, flourish, and decay.

"Redeem mine hours—the space is brief—
While in my glass the sand-grains shiver,
And measureless thy joy or grief,
When Time and thou shalt part for ever !"

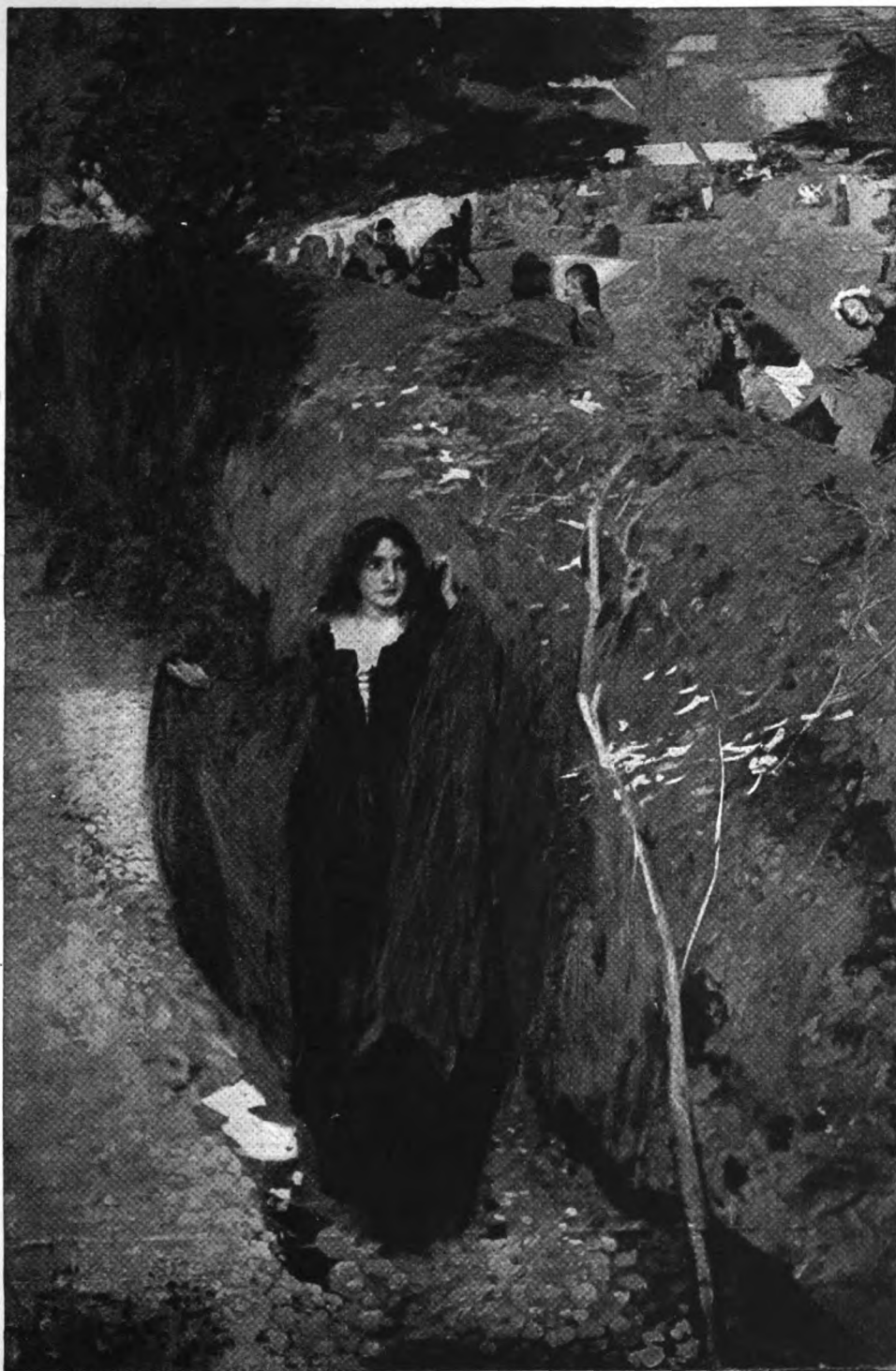
ENVOY

An "envoy," from a French word, "envoi," means the verses at the end of a poem, in which some general idea of the poem is summed up and emphasised: the "envoy" is thus the "message" which the poem has "carried"—for "envoyer" in French means "to send"—from the poet to the reader. But we often find tiny poems given this title without any preceding verses. In this case it is meant to suggest the last word on a noble life, and it is a poetical way of saying that the life to which this is the "envoy" had been of itself a poem. The writer of the following is Charlotte Becker.

SAY not, because he did no wondrous deed,
Amassed no worldly gain,
Wrote no great book, revealed no hidden truth,
Perchance he lived in vain.

For there was grief within a thousand hearts
The hour he ceased to live ;
He held the love of women, and of men—
Life has no more to give !

THE BAILIFF'S DAUGHTER OF ISLINGTON



SHE PULLED OFF HER GOWN OF GREEN
AND PUT ON RAGGED ATTIRE,

AND TO FAIR LONDON SHE WOULD GO,
HER TRUE LOVE TO ENQUIRE.

This picture, illustrating the poem on page 5374, is reproduced, by permission, from the painting by Mr. John Hatherell, R.I.

SOUND THE LOUD TIMBREL

SOUND the loud timbrel o'er Egypt's dark sea!
 Jehovah has triumphed—His people are free.
 Sing, for the pride of the tyrant is broken,
 His chariots, his horsemen, all splendid and brave,
 How vain was their boasting! the Lord hath but spoken,
 And chariots and horsemen are sunk in the wave.
 Sound the loud timbrel o'er Egypt's dark sea!
 Jehovah has triumphed—His people are free.

Praise to the Conqueror, praise to the Lord,
 His word is our arrow, His breath is our sword!
 Who shall return to tell Egypt the story,
 Of those she sent forth in the hour of her pride?
 For the Lord hath looked out from His pillar of glory,
 And all her brave thousands are dashed in the tide.
 Sound the loud timbrel o'er Egypt's dark sea!
 Jehovah has triumphed—His people are free.

— THOMAS MOORE.

PIPING DOWN THE VALLEYS WILD

William Blake, the famous English poet, has always a touch of the mystical and imaginative even in his simplest verses, and this poem is no exception to the rule. What the poet means to suggest to us is the inspiration of the true singer of Nature, whose written poems should be as much in tune with Nature itself as the imaginary piper who here turns his hollow reed into a pen to write down for ever the songs he has been piping.

PIPING down the valleys wild,
 Piping songs of pleasant glee,
 On a cloud I saw a child,
 And he, laughing, said to me:

"Pipe a song about a lamb."
 So I piped with merry cheer.
 "Piper, pipe that song again."
 So I piped; he wept to hear.

"Drop thy pipe, thy happy pipe;
 Sing thy songs of happy cheer."
 So I sang the same again,
 While he wept with joy to hear.

"Piper, sit thee down, and write
 In a book that all may read."
 So he vanished from my sight,
 And I plucked a hollow reed.

And I made a rural pen,
 And I stained the water clear,
 And I wrote my happy songs
 Every child may joy to hear.

HERACLITUS

This very beautiful little poem by William Cory, generally called William Johnson Cory because his name was formerly Johnson, is supposed to be a farewell tribute from the friend of a Greek poet, whom we know only by tradition. There was a famous Heraclitus, a philosopher of Ephesus, who lived 500 years before the birth of Christ, but the Heraclitus here addressed was a different person, who lived a century or more later. Whereas the philosopher's language was uncouth and difficult to understand, the poems of the later Heraclitus were famed for their beautiful melody. The life of the philosopher is dealt with in another page of this book. William Cory was a well-known scholar and an assistant master at Eton College. Caria was a place in Asia Minor where Heraclitus lived.

THEY told me, Heraclitus, they told me
 you were dead,
 They brought me bitter news to hear and
 bitter tears to shed.
 I wept as I remembered how often you
 and I
 Had tired the sun with talking and sent
 him down the sky.

And now that thou art lying, my dear old
 Carian guest,
 A handful of grey ashes, long, long ago at
 rest,
 Still are thy pleasant voices, thy nightin-
 gales, awake;
 For Death, he taketh all away, but them he
 cannot take.

MASSA'S IN THE COLD, COLD GROUND

Stephen Collins Foster, who wrote so many darkey songs, is the author of the following poem.

ROUND de meadows am a ringing
 De darkey's mournful song,
 While de mocking bird am singing
 Happy as de day am long.
 Where de ivy am a creeping
 O'er de grassy mound,
 Dare old massa am a sleeping,
 Sleeping in de cold, cold ground.

Down in de cornfield,
 Hear dat mournful sound:
 All the darkeys am a weeping,
 Massa's in de cold, cold ground.

When de autumn leaves am falling,
 When de days are cold,
 'Twas hard to hear old massa calling,
 Cayse he was so weak and old.
 Now de orange trees am blooming,
 On de sandy shore,
 Now de summer days am coming,
 Massa nebber calls no more.

Massa make de darkeys love him,
 Cayse he was so kind,
 Now, dey sadly weep above him,
 Mourning cayse he leave dem behind.
 I cannot work before to-morrow,
 Cayse de teardrop flow,
 I try to drive away my sorrow,
 Pickin' on de old banjo.

THE VAMPIRE

The verses of "The Vampire," by Rudyard Kipling, were suggested by the painting by Philip Jones, first exhibited at the new gallery in London in 1897.

A FOOL there was and he made his prayer
(Even as you and I!)

To a rag and a bone and a hank of hair.
(We called her the woman who did not care),

But the fool he called her his lady fair
(Even as you and I!)

Oh the years we waste and the tears we waste

And the work of our head and hand,
Belong to the woman who did not know
(And now we know that she never could know)

And did not understand.

A fool there was and his goods he spent
(Even as you and I!)

Honour and faith and a sure intent
(And it wasn't the least what the lady meant),

But a fool must follow his natural bent
(Even as you and I!)

Oh the toil we lost and the spoil we lost
And the excellent things we planned,
Belong to the woman who didn't know why
(And now we know she never knew why)
And did not understand.

The fool was stripped to his foolish hide
(Even as you and I!)

Which she might have seen when she threw
him aside—

(But it isn't on record the lady tried)
So some of him lived but the most of him died—

(Even as you and I!)

And it isn't the shame and it isn't the blame

That stings like a white hot brand.
It's coming to know that she never knew why

(Seeing at last she could never know why)
And never could understand.

THE SLEEP

"He giveth His beloved sleep."—Ps. cxvii, 2.

OF all the thoughts of God that are
Borne inward unto souls afar,
Along the Psalmist's music deep,
Now tell me if that any is,
For gift or grace, surpassing this—
"He giveth His beloved sleep?"

What would we give to our beloved?
The hero's heart, to be unmoved,
The poet's star-tuned harp, to sweep,
The patriot's voice, to teach and rouse,
The monarch's crown, to light the brows?—

"He giveth His beloved sleep."

"Sleep soft, beloved!" we sometimes say,
Who have no tune to charm away
Sad dreams that through the eyelids creep:
But never doleful dream again
Shall break the happy slumber; when
"He giveth His beloved sleep."

O earth, so full of dreary noises!
O men, with wailing in your voices!
O delfed gold, the wailers heap!
O strife, O curse, that o'er it fall!
God makes a silence through you all,
And "giveth His beloved sleep."

His dew drops mutely on the hill,
His cloud above it floateth still,
Though on its slope men sow and reap.
More softly than the dew is shed
Or cloud is floated overhead,
"He giveth His beloved sleep."

Yea, men may wonder while they scan
A living, thinking, feeling man,
Confirmed, in such a rest to keep;
But angels say—and through the word
I think their happy smile is heard—
"He giveth His beloved sleep."

For me, my heart that erst did go
Most like a tired child at a show,
That sees through years the jugglers leap.—
Would now its wearied vision close,
Would childlike on His love repose,
Who "giveth His beloved sleep!"

And friends, dear friends,—when it shall be
That this low breath is gone from me,
And round my bier you come to weep,
Let one, most loving of you all,
Say, "Not a tear must o'er her fall—
He giveth His beloved sleep."

—ELIZABETH BARRETT BROWNING.

MARCO BOZZARIS

Marco Bozzaris was a Greek patriot, who for many years fought against the Turks for the freedom of his country. He was killed in an attack upon the Turkish army. This little poem was written by Fitz-Greene Halleck.

AT midnight, in his guarded tent,
The Turk was dreaming of the hour
When Greece, her knee in suppliance bent,
Should tremble at his power:

In dreams, through camp and court, he bore

The trophies of a conqueror;

In dreams his song of triumph heard;
Then wore his monarch's signet ring;
Then pressed that monarch's throne—a king;

As wild his thoughts, and gay of wing,
As Eden's garden bird.

At midnight, in the forest shades,
Bozzaris ranged his Suliote band,
True as the steel of their tried blades,
Heroes in heart and hand.
There had the Persian's thousands stood.

There had the glad earth drunk their blood
On old Plateæ's day;
And now there breathed that haunted air
The sons of sires who conquered there,
With arm to strike and soul to dare,
As quick, as far as they.

An hour passed on—the Turk awoke;
That bright dream was his last;
He woke—to hear his sentries shriek,
"To arms! they come! the Greek! the
Greek!"
He woke—to die midst flame, and smoke,
And shout, and groan, and sabre-stroke,
And death-shots falling thick and fast
As lightnings from the mountain-cloud;
And heard, with voice as trumpet loud,
Bozzaris cheer his band:
"Strike—till the last armed foe expires;
Strike—for your altars and your fires;
Strike—for the green graves of your
sires;
God—and your native land!"

They fought—like brave men, long and
well.
They piled that ground with Moslem
slain,
They conquered—but Bozzaris fell,
Bleeding at every vein.
His few surviving comrades saw
His smile when rang their proud hurrah,
And the red field was won;
Then saw in death his eyelids close
Calmly, as to a night's repose,
Like flowers at set of sun.

Bozzaris! with the storied brave
Greece nurtured in her glory's time,
Rest thee—there is no prouder grave,
Even in her proud clime.

Talk of thy doom without a sigh;
For thou art Freedom's now, and Fame's:
One of the few, the immortal names,
That were not born to die.

—FITZ - GREEN HALLECK.

THE EVE OF WATERLOO

This poem was written to commemorate the awful battle of Waterloo. Napoleon was marching upon the city and Lord Byron, who wrote the poem, brings vividly before us the picture of the terror-stricken inhabitants on the eve of the battle.

THERE was a sound of revelry by night,
And Belgium's capital had gathered
then
Her Beauty and her Chivalry, and bright
The lamps shone o'er fair women and
brave men;
A thousand hearts beat happily; and when
Music arose with its voluptuous swell,
Soft eyes look'd love to eyes which spake
again,

And all went merry as a marriage bell;
But hush! hark! a deep sound strikes like
a rising knell!

Did ye not hear it?—No; 'twas but the
wind,
Or the car rattling o'er the stony street;
On with the dance! let joy be unconfined;
No sleep till morn, when Youth and Pleas-
ure meet
To chase the glowing Hours with flying
feet—
But hark!—that heavy sound breaks in
once more,
As if the clouds its echo would repeat;
And nearer, clearer, deadlier than before!
Arm! Arm! it is—it is—the cannon's
opening roar!

Within a window'd niche of that high hall
Sate Brunswick's fated chieftain; he did
hear
That sound the first amidst the festival,
And caught its tone with Death's prophetic
ear;
And when they smiled because he deem'd
it near,
His heart more truly knew that peal too
well
Which stretch'd his father on a bloody bier,
And roused the vengeance blood alone
could quell;
He rush'd into the field, and, foremost
fighting, fell.

Ah! then there was hurrying to and fro,
And gathering tears, and tremblings of dis-
tress,
And cheeks all pale, which but an hour ago
Blush'd at the praise of their own loveli-
ness;
And there were sudden partings, such as
press
The life from out young hearts, and chok-
ing sighs
Which ne'er might be repeated; who could
guess
If ever more should meet those mutual
eyes,
Since upon night so sweet such awful morn
could rise!

And there was mounting in hot haste: the
steed,
The mustering squadron, and the clattering
car,
Went pouring forward with impetuous
speed,
And swiftly forming in the ranks of war;
And the deep thunder peal on peal afar;
And near, the beat of the alarming drum
Roused up the soldier ere the morning star;
While throng'd the citizens with terror
dumb,
Or whispering, with white lips—"The
foe! they come! they come!"

And wild and high the "Cameron's gathering" rose!
The war-note of Lochiel, which Albyn's hills
Have heard, and heard, too, have her Saxon foes:—
How in the noon of night that pibroch thrills,
Savage and shrill! But with the breath which fills
Their mountain pipe, so fill the mountain-eers
With the fierce native daring which instils
The stirring memory of a thousand years,
And Evan's, Donald's fame rings in each clansman's ears!

And Ardennes waves above them her green leaves,
Dewy with Nature's tear-drops as they pass,
Grieving, if aught inanimate e'er grieves,
Over the unreturning brave,—alas!
Ere evening to be trodden like the grass
Which now beneath them, but above shall grow
In its next verdure, when this fiery mass
Of living valour, rolling on the foe
And burning with high hope shall moulder cold and low.

Last noon beheld them full of lusty life,
Last eve in Beauty's circle proudly gay,
The midnight brought the signal-sound of strife,
The morn, the marshalling in arms,—the day
Battle's magnificently stern array!
The thunder-clouds close o'er it, which when rent
The earth is cover'd thick with other clay,
Which her own clay shall cover, heap'd and pent,
Rider and horse,—friend, foe,—in one red burial blent!

THE BIVOUAC OF THE DEAD

"The Bivouac of the Dead," by Theodore O'Hara, is inscribed on a monument in the burying grounds wherever the soldiers of our country lie at rest.

THE muffled drum's sad roll has beat
The soldier's last tattoo;
No more on life's parade shall meet
That brave and fallen few.
On Fame's eternal camping ground
Their silent tents are spread,
And glory guards, with solemn round,
The bivouac of the dead.

No rumour of the foe's advance
Now swells upon the wind;
No troubled thought at midnight haunts
Of loved ones left behind;
No vision of the morrow's strife
The warrior's dream alarms;

No braying horn, nor screaming fife,
At dawn shall call to arms.

The neighing troop, the flashing blade,
The bugle's stirring blast,
The charge, the dreadful cannonade,
The din and shout are past;
Now war's wild note nor glory's peal
Shall thrill with fierce delight
Those breasts that never more may feel
The rapture of the fight.

Like the fierce northern hurricane
That sweeps his great plateau,
Flushed with the triumph yet to gain,
Came down the serried foe.
Who heard the thunder of the fray
Break o'er the field beneath,
Knew well the watchword of that day
Was "Victory or death."

Long had the doubtful conflict raged
O'er all that stricken plain,
For never fiercer fight had waged
The vengeful blood of Spain;
And still the storm of battle blew,
Still swelled the gory tide;
Not long, our stout old chieftain knew,
Such odds his strength could bide.

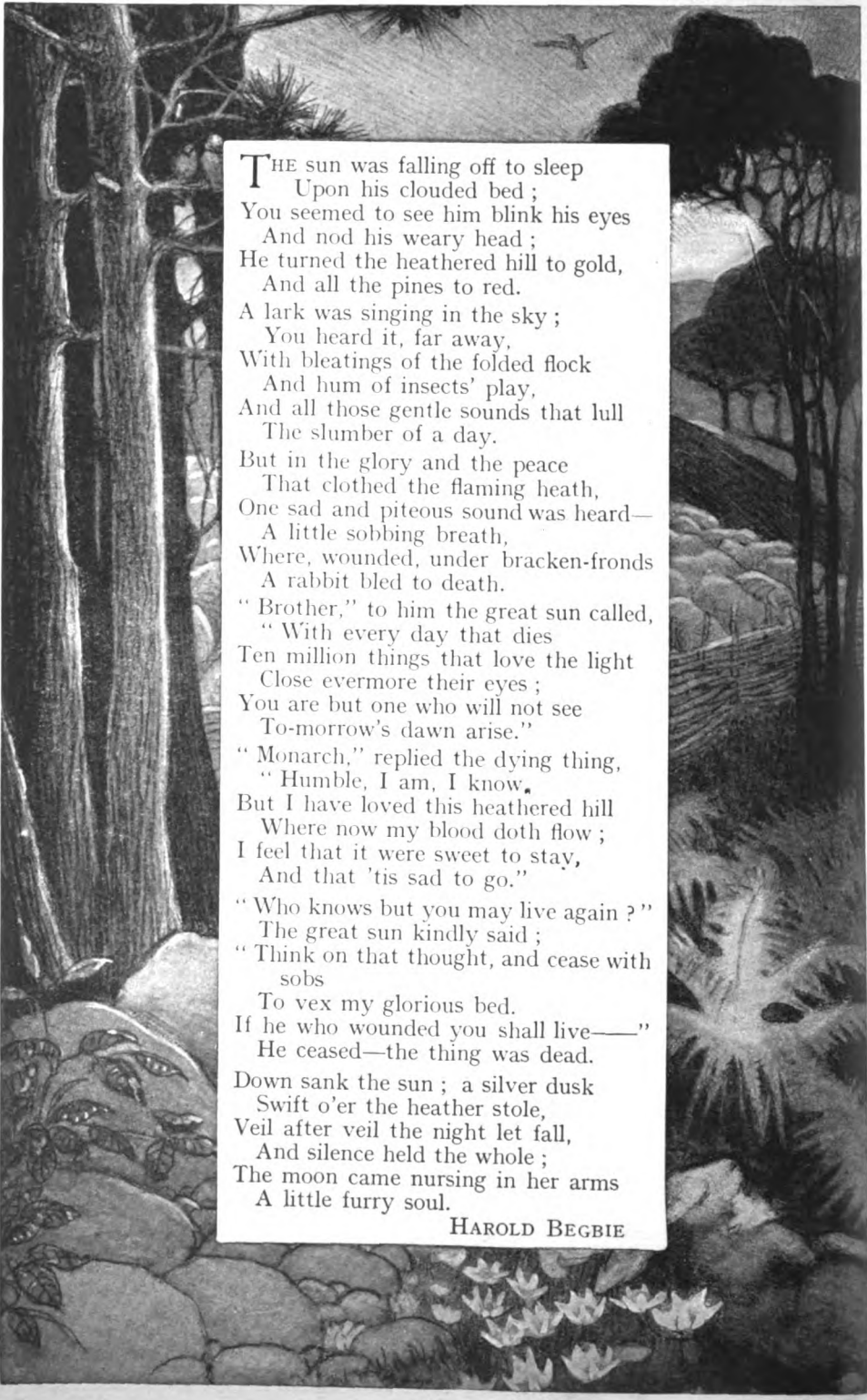
'Twas in that hour his stern command
Called to a martyr's grave
The flower of his beloved land
The nation's flag to save.
By rivers of their fathers' gore
His first-born laurels grew,
And well he deemed the sons would pour
Their lives for glory too.

Sons of the Dark and Bloody Ground,
Ye must not slumber there,
Where stranger steps and tongues resound
Along the heedless air;
Your own proud land's heroic soil
Shall be your fitter grave;
She claims from war his richest spoil—
The ashes of her brave.

Rest on, embalmed and sainted dead,
Dear as the blood ye gave;
No impious footstep here shall tread
The herbage of your grave;
Nor shall your glory be forgot
While Fame her record keeps,
Or Honour points the hallowed spot
Where Valour proudly sleeps.

Yon marble minstrel's voiceless stone,
In deathless song shall tell,
When many a vanished age hath flown,
The story how ye fell;
Nor wreck, nor change, nor winter's blight,
Nor Time's remorseless doom,
Shall dim one ray of glory's light
That gilds your deathless tomb.

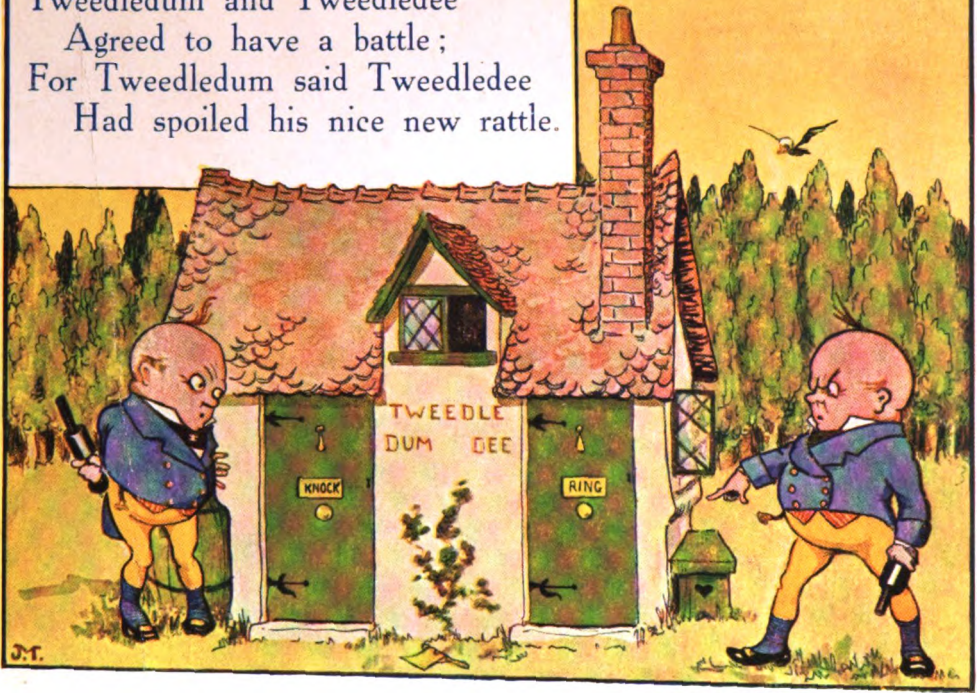
THE SUN WAS FALLING OFF TO SLEEP



THE sun was falling off to sleep
Upon his clouded bed ;
You seemed to see him blink his eyes
And nod his weary head ;
He turned the heathered hill to gold,
And all the pines to red.
A lark was singing in the sky ;
You heard it, far away,
With bleatings of the folded flock
And hum of insects' play,
And all those gentle sounds that lull
The slumber of a day.
But in the glory and the peace
That clothed the flaming heath,
One sad and piteous sound was heard—
A little sobbing breath,
Where, wounded, under bracken-fronds
A rabbit bled to death.
" Brother," to him the great sun called,
" With every day that dies
Ten million things that love the light
Close evermore their eyes ;
You are but one who will not see
To-morrow's dawn arise."
" Monarch," replied the dying thing,
" Humble, I am, I know,
But I have loved this heathered hill
Where now my blood doth flow ;
I feel that it were sweet to stay,
And that 'tis sad to go."
" Who knows but you may live again ?"
The great sun kindly said ;
" Think on that thought, and cease with
sobs
To vex my glorious bed.
If he who wounded you shall live——"
He ceased—the thing was dead.
Down sank the sun ; a silver dusk
Swift o'er the heather stole,
Veil after veil the night let fall,
And silence held the whole ;
The moon came nursing in her arms
A little furry soul.

HAROLD BEGBIE

Tweedledum and Tweedledee
Agreed to have a battle;
For Tweedledum said Tweedledee
Had spoiled his nice new rattle.



Just then flew down a monstrous
crow,
As black as a tar-barrel;
Which frightened both the heroes so,
They quite forgot their quarrel.





DO A HORSE'S EYES MAGNIFY?

CONTINUED FROM PAGE 535.

It is sometimes said that the reason why a horse obeys a man who is smaller than itself is that the horse's eyes magnify, so that it gets an impression of size which causes it to obey. This is not an idea that any one should really believe.

To begin with, if a horse's eyes magnified, everything would be magnified, and a man would still be small in proportion to, say, another horse. Again, like ourselves, a horse is not dependent merely upon its sight to know size; it knows by feeling and sound that a man is smaller than itself.

But, of course, a horse's eyes do not magnify at all, quite apart from the fact that the horse would not be deceived if they did. To magnify is to make bigger than Nature. An eye made like a magnifying glass might do this when looking at a very near object, and it is probable that there are eyes in certain tiny animals which are really "microscopic," as we say.

But no eye can possibly magnify anything seen at a distance, for even the telescope cannot do that. It can only make the image of anything seen less small than it would appear without the telescope. A horse's eyes see tiny images of things thrown on the eye-curtain, as our eyes do, even of huge things like the sun. And the horse obeys us, as other things do, because we have more mind, and mind is master.

CAN WE MAKE OURSELVES BEAUTIFUL?

There are many kinds of beauty, some that last and some that wear away. We cannot do much for ourselves in the way of the beauty that

does not last, for this depends on the chance of our birth and fortune. We can do something, however, by means of living healthy, sensible lives, not eating or drinking too much, taking enough time in fresh air, and keeping the skin clear and the muscles of the face firm by sensible exercise. All this is well worth doing for itself, as well as for its effect upon our appearance.

But there is a deeper kind of beauty which we can indeed make for ourselves if we are wise enough, and to which there will be no end. There is the beauty of a beautiful soul shining through the face like the light streaming through the windows of a house at night. By thinking kind thoughts, by keeping our temper, by persevering firmly in our purposes, we can make our faces a history and register of what our lives have been. All states of feeling affect the expression of the face, and in time the kinds of feeling that we have oftenest had make lines that stay upon our faces, so that children will run to us or run away from us. And so we can make ourselves beautiful or ugly in the only way that matters.

WHY DID THE SAND GET ON THE SEASHORE?

The sand found on the seashore or anywhere else is made of one of the commonest elements in the world, the name of which is silicon. In the part of the world that is not actually alive, silicon corresponds to carbon in the living world. They are very similar elements, and they both

combine with oxygen to form compounds called oxides. In the case of carbon this is carbonic acid gas, but in the case of silicon it is the sand of the seashore, which is also found in many other forms.

Ages ago, when the earth was far hotter than it is now, its crust was formed by certain things turning solid, and almost the most important fact of that time was that the element silicon was all burnt up into oxygen, of which there was enough and to spare. The common name for the compound of silicon and oxygen is silica. The making of silica by the burning up of silicon was the first step toward the sand of the seashore.

Now, a great portion of this silica, made up of very tiny grains, became glued together by means of other softer substances, so as to form the sort of rock called sandstone. And when this rock is exposed to water and wind, they break down the sandstone into the grains of sand of various size that we find on the seashore. It is really all burnt silicon. And quite a little depth of it, a few feet, contains as much oxygen as is to be found in all the air above it.

HOW CAN A NEWSPAPER BE MADE FOR A PENNY?

If only a single copy of a newspaper were to be made, it would cost hundreds of thousands of dollars. If everything required had to be made for the purpose, it would cost many millions of dollars in railways, and cables, and ships, and telegraphs, and telephones, and mines for the iron to make the printing presses, and countless things more. It is only because all these things exist already, and serve many other purposes as well, that it is possible to have a newspaper at any price at all.

But even granting that all these things exist, and even realising that a mere newspaper is really a product and an expression of *all* the greatest facts of civilisation, it would still be impossible to produce a single copy of a newspaper for one penny. That would not go far to pay for the printing of it, and to pay all those who send the news and write the articles.

But if a million people or even a few hundred thousands all want the newspaper, then all their pennies together will make it possible to get it. To print one copy of the newspaper may cost

hundreds or millions of dollars, according as we reckon all the things it depends upon; but to print two copies will cost *less than one penny* more than to print one, and there is the secret. Merely to strike off copies costs much less than we give for them, and so, if enough of us ask for a thing, we can, by clubbing together, get for one penny what none of us, alone, could afford to pay for if he devoted his life to saving up for it.

ARE THERE ANY TWO THINGS EXACTLY ALIKE IN THE WORLD?

This is a question which has often been asked by wise men and which we can perhaps answer at last. If we want to find things that are exactly alike, we must go to what is very simple. We shall never find two religions exactly alike, or two men, or even two animals or plants. Probably even the very simplest living things are far too complicated in reality for any two to be exactly alike. We must pass away from the world of life if we wish to find complete likeness.

But we have more chance of finding what we seek in the not-living world. Two crystals of any particular substance may be quite alike so far as any of our means of judging can tell us. If we could measure finely enough, we should probably find small differences. Far more alike must be the atoms of any particular element, though we have learnt from the study of radium that atoms, even of a given element, may be young or old, and differ accordingly.

We only find perfect likeness, so far as we know, when we come down to the electrons, or "negative corpuscles," that make up all atoms of all kinds. These seem to be all exactly alike in all respects at all times, no matter from what kind of atom they have come.

WHY ARE LONDON POLICEMEN SOMETIMES CALLED "BOBBIES"?

The police force was started early in the nineteenth century, by a famous statesman called Sir Robert Peel. Since his time policemen have often been described by names recalling their founder. The best known of these is "bobby," which plainly suggests Robert, and, indeed, sometimes people are heard speaking of a policeman as "Robert." Also, not many years ago, it was still quite common to hear policemen called "peelers," on exactly the same principle.

DO CATS AND DOGS EVER CRY?

Cats and dogs may be terribly unhappy—far more than unhappy enough to make them cry if they were human. Yet we know that neither cats nor dogs ever do anything which can fairly be called crying. Of course, they have tear-glands, as we have, because the front of their eyeballs requires washing and moistening, just as our eyeballs do; and it may be that their tear-glands produce tears more quickly at one time than at another. But it cannot be said that cats and dogs ever cry.

It would be interesting to study the kinds of animals that come nearest to mankind, and see whether crying is to be found among them. The animals nearest to us are monkeys; and among these there are four kinds, called apes, which are much nearer to us than the others. There is no question at all that they laugh and grin. But no ape cries, and, indeed, we are the only creatures who cry. Why this is so, no one can say.

DOES ANYONE KNOW THE EXACT STABLE WHERE JESUS WAS BORN?

No, indeed. Nor is it in the least possible that that stable is now in existence. We may be sure that it was not made of great stone walls, but of very thin, slight materials, fit to last only a few years. Not only is this so, but the more we inquire into this kind of question the less certain do we become of what we thought we knew. There are people who are very sorry that this should be so, but wise people feel very differently about it. They never forget that the value of what matters can seldom depend upon what does not matter. It is certain that something happened which gave us the divine words and thoughts and truths that we may read in the Gospels today. They did not come from nowhere. Their worth is no greater—it could not be greater—and no less, whether we know the stable where Jesus was born or not. *There* is the record of the Perfect Life.

DO WE SEE OURSELVES IN DREAMS?

There is no reason why we should not see ourselves in dreams, and certainly many people do see themselves. The greater number of dreams are visual—that is to say, they have to do with vision, or seeing. We do not so much *hear* things said as *see* people doing certain deeds. That is because in most brains the vision part is most important, and has been most excited during the day.

We shall be more apt to see ourselves in our dreams when our attention during the day has been very much directed to ourselves. If something has happened to us, and we have been much looked at; if we have been singing or acting or speaking or reading; and if we have been thinking how we looked when everyone was looking at us; or if we have been looking at ourselves in a glass, or even looking at photographs of ourselves—in all such cases as these we shall be very liable to see ourselves in our dreams.

WHY DO WE GET EXCITED WHEN WE ARE PLEASED?

Pleasure is a state of feeling or emotion. These states of feeling may all be classified in two groups, on the pleasure side or on the pain side. All the states of feeling and emotion that lie below the neutral line, and belong to the more or less painful class, act by depressing us; they reduce our activity. A man stricken by terrible grief may remain huddled up and motionless for hours. Pain and painful feelings lower the tide of life.

On the other hand, the pleasurable feelings stimulate; they raise the tide of life. Just as the others lessen activity, so these increase activity. The happy man wants to jump, and dance, and shout, and throw his hat in the air. Children show all these facts more clearly than grown-up people, simply because grown-up people hold themselves in check. But what happens is really the same in both cases.

WHY IS LONDON CALLED LONDON?

Many names of things and places were given long ago, before history began to be written. Therefore we cannot be sure how the names came to be applied to some places. London is one of such names. Its beginnings take us back to the time when the inhabitants of Great Britain were savages. In those days the River Thames was much wider than it is now.

The river made a sort of lake, or lagoon, up which the tide came from the sea. The rude barbarians built a fort, which they called "the fort on the lagoon," using a Celtic word to express that meaning. The Romans, when they came to Great Britain, adopted the word, which they changed a little, so as to fit in with the Latin words that they were in the habit of using. They called it Londinium, and the changes in language since the time of the Romans have modified the word into London. Thus the history of a place may often be revealed by its name

WHY DO THE WORLDS NOT COLLIDE AS THEY GO ROUND?

It is true that, so far as we can see at first, the worlds do not collide. We have no record of any collision in the solar system since men began to watch it. We have learnt that "the heavens are balanced" by the law of gravitation, acting together with the laws of motion. Yet we are certain that the solar system was not always as it is now, and that it is slowly changing, so that collisions are by no means impossible.

In all parts of the sky there are double stars, and these must all have been formed by collisions.

Another most important question, the answer to which probably gives the key to many facts, is the question as to what happens when a star rushes into a nebula. We are certain that this must happen again and again. Lately it has been thought that we have actually seen evidence of new stars blazing out in

the heavens after being formed by collisions.

WHY IS ITALY'S SKY BLUER THAN OURS?

The sky is blue because certain tiny things in the air catch the tiny waves that form the blue part of sunlight, and then throw the blue rays to our eyes. If they did not do this the sky itself would be dark.

As Italy is nearer the Equator than we are, the sun's rays strike it more directly, and therefore more brightly. This means that there is a greater quantity of blue rays, as of all kinds of rays, coming through the Italian air; and the reason why the air is bluer is because the particles of it have more blue rays to catch and reflect to our eyes. We must always remember that when we speak of the sky being blue it is really the air that is blue; and the colour that seems to come from so far away is reflected from only a few miles away. Another reason why the sky of Italy is bluer than ours is that Italian cities do not send so much dirty smoke into the air as ours do.

WHY IS THE RAIN SOMETIMES HEAVY AND SOMETIMES FINE?

One condition must always be present before the water-vapour in the air can condense into the little liquid drops which, if they fall, we call rain. That condition is that there must be some solid nucleus, as it is called, for the water-vapour to condense upon, and it is quite possible that one of the reasons why raindrops differ in size is owing to the difference in size of the specks of solid matter—dirt or dust—round which they gather.

But we have lately learnt that sometimes electricity may act on the gases of the air, and split up the molecules of those gases, forming tiny things which are able to act as specks for water-vapour to condense upon. The size of raindrops may also be affected by the level at which the rain was formed, and when a very sudden change of the temperature has caused them to form very quickly they may be quite huge.

IS THERE A WORLD BEYOND OUR SENSES?

NOBODY who knows anything at all can doubt that there is a world beyond our senses. From the beginning of time men have felt that there were things beyond their dreams, which they can neither see nor hear nor feel. But the nature of that world is part of the mystery of life itself, and of that we know little more than the ancients knew. We speak sometimes as if the ancients were ignorant people, dwelling in barbarism; but, in truth, they were wise in many things beyond the wisdom of our own day.

They measured the earth, they had their ideas about the solar system; even the law of gravitation was not unknown to them. The mystery of life absorbed their attention as it absorbs the attention of our own thinkers; and in this matter they were hardly behind us to-day. And so we are faced with the thought that for over 2,000 years the mind of man has remained almost stationary concerning the great mystery of life. Do we know more about it than the philosophers who lived in Alexandria hundreds of years before Christ, and the philosophers who lived in Athens hundreds of years before Alexandria? Do we understand better than they did the mystery of existence, the great riddle of the universe? Are we able to prove anything more than they knew?

It is a strange thought that the whole human race may have really been standing still for more than two thousand years. So far as ultimate knowledge of life is concerned, we are indeed in exactly the same place as those far-off men of Alexandria and Athens.

But quite recently a hope has come to men that at last we are really beginning to advance. And this hope is founded on the realisation that our natural senses are not sufficient for reading the riddle of the universe. The eye, wonderful and exquisite as is its mechanism, is a clumsy vehicle of sight. The microscope reveals to us unsuspected beauty in minute things; the

telescope opens to our gaze a flooding glory from immensity. "The native senses," says one American writer, "give us but a slight notion of the real world about us; they are crude, coarse, inaccurate, unreliable, prone to delude."

And so we have reached a time when man has *outgrown his senses*. This is the real miracle of our day. This is the fact, so little realised even by those who insist upon it, which proves that man is immortal. For there is in man something so infinite that it cannot be content with the finite. Man wishes to know, and sets himself to know, more than his body can possibly accomplish. Have you thought what that means? Does it not prove to you that the spirit of man is like a tenant in a house, and that man, every time that he invents a new machine, is really declaring that his house is not big enough for him. His eyes cannot read the stars, so he invents the telescope. His hands are not strong enough to lift iron, so he invents the lever. Everywhere we look, we perceive that science has only advanced where man has called to his aid mechanical inventions for improving his physical powers.

We shall all do well to reflect upon this truth. It is certainly a humbling thought that we know nothing more about the mystery of life than did the ancients of Athens and Alexandria; and it certainly looks as if the mind of man has been standing still for a great space in human history. But let it be grasped by our minds that to-day is the birth of a new era, the beginning of a fresh discovery, and we shall not be depressed by our almost total ignorance.

Man, for the first time in his long and wonderful history, has reached the need for *tools* in investigating mystery. The test-tube of the chemist holds within it secrets which will carry us far on our journey. We have had to outgrow our eyes, our ears, and our hands before we could see, hear, and handle the truth of existence, and no man can say what really lies in the world beyond our senses.

HOW LADY GODIVA HELPED HER PEOPLE

WHEN Leofric the Dane was Lord of Coventry, in the year 1040, he heavily increased his taxes on the townsfolk. The people met together and sent their chief men to implore his wife, the Lady Godiva, who was greatly beloved by them for her many gracious acts to the

replied she with spirit. "For I will ride through this town, clad in nought but my long tresses, if I can thus turn you from your cruel purpose."

"Ride thus, and I yield," he replied. Lady Godiva sent out word to the townsfolk of her bargain, and on the following



LADY GODIVA PLEADING WITH HER HUSBAND FOR THE PEOPLE OF COVENTRY

This picture is from the painting by E. Blair Leighton, which now hangs in the City Art Gallery, Leeds.

sick and the poor, to plead with her lord to remit some of the heavy taxes.

Accordingly Lady Godiva pleaded with her lord on their behalf, but he roughly refused, saying, "Shameless are you to plead for these base, whining serfs."

"Shameless am I? Then shameless will I be indeed, and we shall see whether these serfs be base or honourable,"

morning she rode from end to end of the town of Coventry, and every inhabitant remained within doors as she rode, to spare their beloved benefactor any possible feeling of shame. Leofric kept his word to his wife. The burden of the people was removed, and to this day the citizens of Coventry delight to do honour to the memory of Lady Godiva.

THE NEXT STORY OF GOLDEN DEEDS IS ON PAGE 5511.

The Child's Book of SCHOOL LESSONS



READING CLUB

HOW PLACES GET THEIR NAMES

A GREAT deal that is very interesting is to be learnt from the names of places; but as it would take far too much space to give all the interesting place-names in the world, first we shall consider only the names of places within the British Isles.

ANGLESEY comes from two old words, *onguls-ey*, meaning "the island of the strait." The word *ey* means island, and is found in many of our place-names, as Chelsea, Putney, Orkney. So Anglesey has nothing to do with Angles, nor should it be spelt Anglesea.

BERKELEY, where Edward II. was murdered, is called after the birch-tree, *BERK* meaning birch.

BERKSHIRE, called Beroc-scire in Alfred's time, means "forest-shire."

BEVERLEY, in Yorkshire, is really Beverlac, the lake of beavers.

BIRMINGHAM, or more correctly Beorming-ham, appears in Domesday Book as Bermingeham. It was afterwards called Bromwych-ham, which still survives in West Bromwich and "Brummagem."

BUCKINGHAM comes from the Anglo-Saxon *boc*, a beech-tree, because there used to be fine beech-forests in this county.

CAMBRIDGE was originally called Cam-boritum by the Romans; later on the Saxons called it Granta-brygge, or bridge over the Granta, which was another name for the river Cam. Its modern name, Cambridge, means, of course, the bridge over the Cam.

CARDIFF is *Caer-Taff*, the fort on the river Taff; the same word

Taff is seen in the name Llandaff.

CHEPSTOW is for *Ceapstow*, a place of sale, from the Anglo-Saxon *ceap*, meaning cattle, business, or market. It is also found in Cheapside, Chipstead, Chipping Norton, Chippenham, and many other names.

CHESHIRE means the Chester-shire, and Chester is the Anglo-Saxon *ceaster*, a camp, from the Roman *castra*, a camp. The full name of Chester in Roman days was *Devana Castra*, the camp on the Dee.

CORK means swamp or marsh, and is really the Irish word *Corcoch*, or *Corcaig*, a swamp. It is so called because it is built on a group of islands that were formerly a swamp.

CORNWALL is derived from the same word as Wales. Cornwall is short for *Cornweala-land*, the land of the Corn-Welsh. The Anglo-Saxon called the earlier inhabitants of Britain "Welsh," that is, "foreigners."

CUMBERLAND is from Cumbria, the land occupied by the *Cymri*. These people were of the same race as the Welsh, and the original name of Wales was *Cambria*, or the land of the *Cymri*.

DORSET was *Dorsaeta* in Anglo-Saxon, from the word *dwr*, water, probably referring to an early settlement of Britons by the water-side.

DROITWICH used to be called *Salinae*, or salt-springs. Its present name comes from *wych*, or salt-house, and *droit*, meaning right, probably meaning

the house where the droits, or dues on the salt, were paid. The same word *wyck* comes in Nantwich, the town in the Cheshire salt district.

DUBLIN is the Irish Dubb-linn, meaning black pool.

DURHAM is short for Dun-holme, hill-island, which was softened by the Normans to Duresme, pronounced Doo-rame, and so became Durham.

EDINBURGH was originally Edwinesburg, the town or borough of Edwin King of Northumbria, who captured the place about A.D. 617. The Gaelic word for this is Dunedin, Dun meaning town, and Edin meaning Edwin's. So the New Zealand town, Dunedin, is really Edinburgh.

GLAMORGAN stands for Gwlad Morgan, the territory of Morgan, a Welsh chief who lived about a thousand years ago.

GLASGOW most probably comes from Cleschu, or Glaschu. In Celtic, *glas* means green, and *cu* or *ghu* means dear; so Glasgow may mean "the dear green spot." Others say it comes from two words meaning a dark glen.

GLOUCESTER gets its name from the British *Caer-Gloui*, or camp of Gloui, who was a son of the Roman Emperor Claudius. The Romans called it Glevum, and, later on, the Saxons called it Gleauan-ceastre. The *ceastre*, or *cester*, is the Roman *castra*, camp.

HEREFORD means "army ford."

HERTFORD is most likely a corruption of Hereford, although some say it is Herudford, that is, red ford; and others say it is "hart ford," because harts used to cross there.

ILFRACOMBE was Alfredscombe, the combe, or valley, belonging to some Alfred.

IPSWICH was Gippes-wic, the *wic*, or village, on the river Gipping.

LANCASTER means the *caster*, or camp, on the river Lune.

LEICESTER means the *caster*, or camp, on the river Leire, as the river Soar used to be called.

LINCOLN was called by the Romans Lindum-colonia. *Lindum* is a Celtic word meaning "the hill-fort by the pool." *Colonia* is a Latin word meaning colony, and is found in Cologne.

LIVERPOOL is probably Llyorplw, meaning "the expanse at the pool," though some people think it is from Litherpul—"the stagnant pool."

LONDON is, in all probability, a corruption of Llyn-dun, the name given by the Britons to their settlement on the banks of the Thames. The name means a fort by a pool or lake, and is the same as the Lindum in Lincoln.

MANCHESTER is the Saxon Mamcestre, or Manigceaster; the Romans called it Mancunium.

MERTHYR-TYDFIL, in South Wales, is interesting as meaning "the martyr Tydfil." Tydfil was the daughter of a Welsh chief, Brychan, who gave his name to the town and county of Brecon, and she is said to have been put to death by pagans on the spot where Merthyr now stands.

NORTHUMBERLAND used to mean just what it says, the land north of the Humber. Now its meaning has been narrowed down to a single county.

NOTTINGHAM has lost its first letter; it used to be Snottingham, the place of caves, because the town is undermined with caves cut out of the soft sandstone. The old name still survives in Sneinton, a district of Nottingham.

OXFORD used to be Oxenaford, and then Oxenford. Most likely it means a ford for oxen, though some people think the *ox* is connected with a word meaning water, seen in Usk, Ouse, Isis.

PEMBROKE means practically the same as Land's End. Pen means hill, or head, and Broc a district. Pembroke-shire is to Wales what Land's End, in Cornwall, is to England.

PENZANCE means holy headland.

RUTLAND means red land.

SHEFFIELD takes its name from its river, the Sheaf.

SHREWSBURY is a corruption of Scrobbesbyrig, meaning the town in the wood.

SHROPSHIRE means the shire of Scrob-besbyrig, or Shrewsbury. The Normans changed the name to Sloppesburie, and this gives the other name by which it is often called to-day, Salop.

SOMERSET is the home of the Sumer-sætan, but what that means is not quite certain. Some think it is for Suthmorset, meaning the south moor settlement.

STAFFORD is for Statford, or Stadford, and does not mean, as many people suppose, "the ford crossed by means of a staff, or upon stilts."

SURREY means "south kingdom,"

and comes from the Anglo-Saxon *Suthrey*. It was so called because it was south of London and the Thames.

TAMWORTH means the estate on the river Tame. "Worth," meaning estate, comes in several names, such as Walworth.

TEWKESBURY takes its name from Theoc, a hermit, on the site of whose cell the monastery of Tewkesbury was built.

TIVERTON is really Twy-ford-ton, the town at the two fords. Several places where there were two fords got the name of Twyford.

WEDNESBURY is an example of a town named after a heathen god, Woden. This town was built on the site of a temple of Woden, and was called Wodnesbeorh. The same god's name comes in Wednesday.

WESTMORLAND means the land of the people of the Western moors.

WILTSHIRE is for Wilton-shire. Wilton is a small town in Wiltshire, so called because it is on the river Wyly. It was the ancient capital of Wessex, and so gave its name to the county.

WOLVERHAMPTON used to be simply Hamton, meaning high hill. Later it was called Wulfrunishamton, after Wulfruna, the sister of the king who founded St. Peter's Church there.

WORCESTER was called by the Saxons Wigornaceaster, a name which they took over from the Roman Vigorna. Possibly the name is connected with the Hwicci, a tribe who held that district at one time.

YORK was called *Caer-Ebroc* by the Britons, and *Eboracum* by the Romans, and these are really the same names as York, though they look very different. *Eboracum* became *Eoforwic*, and that became *Eurewic*, which was pronounced *Yorric*, and so we get the name York.

ARITHMETIC

ADDING AND SUBTRACTING FRACTIONS

WE know that a fraction is *part* of a thing; also that the figure underneath shows the number of parts into which the thing is divided, while the figure above it shows how many of these parts have been taken to make the fraction. It is clear, then, that the numerator should be a smaller number than the denominator.

But suppose we divide each of two units into four equal parts. There will be eight parts altogether, each of which is a quarter of a unit. Now, if we take five of these parts, we shall have a quantity which we may represent by $\frac{5}{4}$. Such a quantity, being more than a whole unit, is not, properly speaking, a fraction. It is therefore called an *improper fraction*. This particular improper fraction plainly consists of enough quarters to make a whole one, and another quarter besides. It is, then, "one and a quarter," which we express by writing the 1 with the $\frac{1}{4}$ close to it, thus: $1\frac{1}{4}$. A quantity like $1\frac{1}{4}$ is called a *mixed number*, because part of it is a whole number, and part of it is a fraction.

From this, it is clear that we convert an improper fraction into a mixed number by dividing the numerator by the denominator. For four quarters, which make a unit, are

contained in five quarters once, and there is still a quarter left. That is, five quarters make 1 and $\frac{1}{4}$, or $1\frac{1}{4}$.

EXAMPLE: Convert $\frac{17}{7}$ into a mixed number.

Dividing 7 into 17, we get a quotient 2, and a remainder 3; which means there are 2 units and 3 sevenths. So that $\frac{17}{7}$ is equal to $2\frac{3}{7}$.

Express $\frac{13}{3}$ as a mixed number.

Here 3 is contained 4 times in 13, and there is a remainder 1. Therefore, $\frac{13}{3}$ is equal to $4\frac{1}{3}$. But $\frac{1}{3}$ can be brought to lower terms by dividing numerator and denominator by 4, which gives $\frac{1}{12}$. Thus, $\frac{13}{3}$ equals $4\frac{1}{12}$.

By undoing this process, as it were, we can express a mixed number as an improper fraction. We have simply to multiply the number of units by the denominator, and add in the numerator.

EXAMPLE: Express $2\frac{3}{7}$ as an improper fraction.

Here the number of sevenths in 2 is 7 times 2, or 14; which, with the 3 sevenths, make 17 sevenths, or $\frac{17}{7}$.

We are now sufficiently advanced to understand how fractions are added together, or how one fraction is taken from another. A number of simple examples will make the process quite clear.

EXAMPLE: Add together $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$.

We can only add quantities together when they are quantities of the same sort. Here we have 4 fractions which all have different names, such as "thirds," "sevenths." Our first step must therefore be to express them all as fractions with the same name, that is, we must make them have a common denominator. We already know how to do this. The L.C.M. of 7, 21, 3, 42 is 42. We arrange the work as shown here, using the sign + to denote addition,

$$\frac{7}{7} + \frac{1}{21} + \frac{3}{3} + \frac{5}{42}$$

$$= \frac{18 + 16 + 28 + 5}{42}$$

$$= \frac{67}{42} = 1\frac{25}{42}$$

and writing the common denominator only once, instead of putting it under each numerator. In working it out we say: 7 into 42, 6. Then 6 times 3, 18. Write 18 for the first numerator. Proceeding in the same way, we get 16, 28, 5 for the others. We have now to add these together. The total is 67. Thus, the sum of our fractions is $1\frac{25}{42}$, or bringing this to a mixed number, $1\frac{25}{42}$.

EXAMPLE: Find the value of $1\frac{3}{8} + \frac{5}{8} + 3\frac{7}{8} + 5\frac{1}{8}$.

$$1\frac{3}{8} + \frac{5}{8} + 3\frac{7}{8} + 5\frac{1}{8}$$

$$= 9 + \frac{27 + 40 + 14 + 18}{72}$$

$$= 9 + \frac{99}{72} = 9 + 1\frac{11}{8}$$

$$= 10\frac{11}{8}$$

tions in exactly the same way as before.

When we have mixed numbers, we first add the whole numbers, which here total 9, and then proceed with the fractions in exactly the same way as before.

Their total is $9\frac{9}{8}$, or $11\frac{1}{8}$. Adding the 9 to this, and reducing $9\frac{9}{8}$ to its lowest terms, we obtain the result, $10\frac{11}{8}$.

Subtraction is worked in a similar way. EXAMPLE: Take $\frac{5}{8}$ from $1\frac{3}{8}$.

$$1\frac{3}{8} - \frac{5}{8}$$

$$= \frac{33 - 25}{8}$$

$$= \frac{8}{8} = 1$$

EXAMPLE: Find the value of $7\frac{3}{4} - 3\frac{1}{4}$.

As in addition, we deal with the whole numbers first, taking 3 from 7. We are left with the problem of taking $\frac{1}{4}$ from $\frac{3}{4}$. Arranging the work as shown, and bringing the fractions to a common denominator, we find that we cannot subtract the numerator, 3, of the second from the numerator, 3, of the first. We therefore call one of our 4 units 45 forty-fifths, and add it on to the 10 forty-fifths.

This leaves us with 3 units, and 33 forty-fifths to take from 55 forty-fifths, which gives $3\frac{33}{45}$. Thus the result is $3\frac{11}{15}$.

Of course, these are simple examples of the addition and subtraction of fractions, but any number of fractions, however large and complicated, are added or subtracted in the same way.

MUSIC

THE LAST OF OUR FAIRY LADDERS

THERE are still two more fairy ladders for us to know—B major and its tonic minor. If we use our memories, we shall recall a very important fact—that in all the scales with sharps, the last sharp is the seventh note—that is, the *leading note of the scale*. So as A# is the seventh note in B major, we know it is the new sharp, and the last one in this particular scale; therefore the sharps forming the signature will lie between, and include, F# and A#.

We also remember that the order in which the little sharp goblins proceed is by perfect fifths, so our

signature is F#, C#, G#, D#, A#, thus:



Now, what about the fingering? Well, the right hand has been thinking fondly of the first five major scales, C, G, D, A, E, and their tonic minors, and it has come to the conclusion that just for these two scales the old way

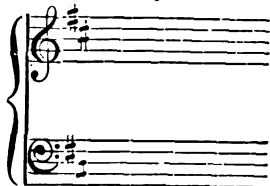
shall again be taken; so the fourth finger of this right hand is to be found on A \sharp , the seventh note of both B major and B minor. Here is B major:



We also want to write B minor, but first of all we must find its signature. All we have to do is to find the relative major. We walk up three semitones, or a minor third, and come to D:



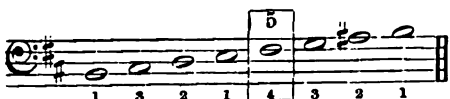
The signature of D major is, as we know,



therefore the signature of B minor contains the same two little sharps. When we come to Fairy A, however, we find that she is not in her place, for at the last minute she yields to little Goblin A \sharp , and he hangs his card on the staff, telling us our loved semitone between the seventh and eighth degrees is not wanting, and we are playing the scale of B minor and not D major.



Next we have to discover what the left hand deems best in these two scales—B major and B minor. It has quite a new thought, and it is this, that the fourth finger is to find its home on the *fifth note* of both scales, in this way:



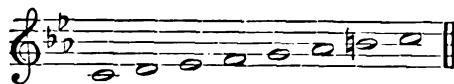
So we have found out a great many of the fairy ladders, and we have also

discovered that every major scale has its tonic minor—that is, the minor with the same tonic or keynote; also its relative minor—that is, the minor scale starting on the sixth note of the given major, and bearing the same key-signature as that major scale. So we can arrange our fairy ladder in groups of three: 1, major; 2, tonic minor; 3, relative minor. Here are examples:

C MAJOR

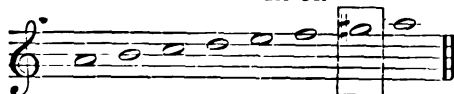


TONIC MINOR



THREE FLATS MORE IN THE SIGNATURE

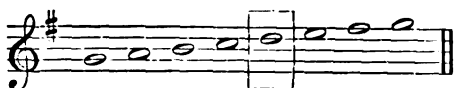
RELATIVE MINOR



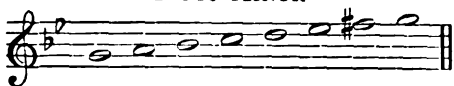
THE SAME SIGNATURE AS ITS RELATIVE MAJOR

DISTINGUISHING NOTE G \sharp

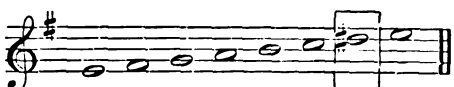
G MAJOR



TONIC MINOR



RELATIVE MINOR



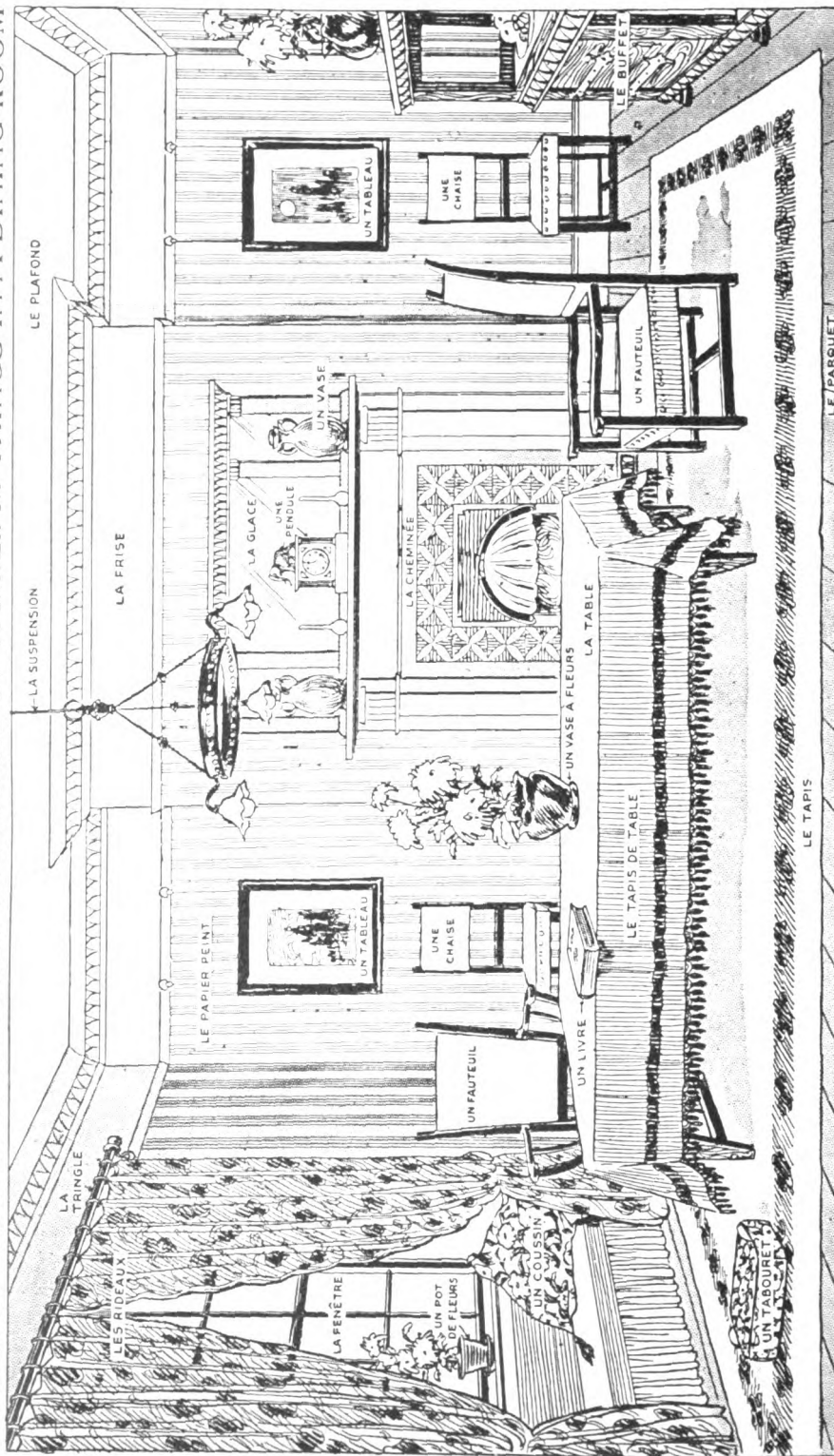
DISTINGUISHING NOTE D \sharp

The fairies think we are now quite ready to go on arranging the remaining scales in their groups of three, just in this way. We may also look back at all we have been learning about these fairy ladders, and put the right fingering as well as the right notes.

If we continue to practise carefully, first very slowly, then gradually—but *very* gradually—quicker, we shall be well on the way to running up and down our ladders of tone as quickly and evenly as the music fairies want us to.

THE NEXT SCHOOL LESSONS ARE ON PAGE 5533.

A FRENCH LESSON IN PICTURE: THE NAMES OF FAMILIAR THINGS IN A DINING-ROOM



This picture of a dining-room will help us to learn the French for the familiar things around us. The objects named are the ceiling, electric-light pendant, frieze, wall-paper, curtain-pole, curtains, looking-glass, clock, vase, fireplace, picture, chair, armchair, window, flower-pot, cushion, table, table-cloth, book, flower-vase, sideboard, footstool, carpet, and flooring.



SIR WALTER RALEIGH WRITING IN HIS DUNGEON AT THE TOWER

SIR WALTER RALEIGH

THE FOUNDER OF THE BRITISH EMPIRE

WE should keep a warm place in our hearts for the memory of Sir Walter Raleigh, who tried to found a British Empire over the seas. It was in his great, far-seeing mind that there dawned the idea of carrying people from these islands to build up new Britains in strange and savage lands. He was a warrior, an explorer, a historian, and a poet. It is true that he was far from perfect. He lived in wild and lawless times, when it was deemed not dishonourable for English noblemen to send ships to sea to act as pirates. If they succeeded, they were honoured for their wrongdoing; but the great crime was to fail.

Raleigh was born at Hayes, near Budleigh Salterton, Devonshire, in 1552. The little Walter was a born hero, and loved to haunt the beach at Budleigh, there to feast his mind on stories of strange lands and strange peoples across the wide waters, poured into his willing ears by bold sailors resting in the little town after their voyages.

Born to an adventurous life, Raleigh had talent for scholarship also, and we find him, when only fifteen years of age, a student at Oxford University, after he had done well at the schools round about his home. He stayed about three years at Oriel College, and then, at seventeen, he opened

his career of daring. He went to France and fought in the Protestant army, and saw several battles. He remained abroad five years, and was there during the frightful massacre on St. Bartholomew's Eve, and witnessed horrors which possibly prompted him to denounce religion persecution, as he did in later years.

He never flinched from shedding blood when he thought that severe measures were necessary. A rebellion sprang up in Ireland, and he went there in search of adventures. He had by this time followed up his adventures in France by making a voyage with Sir Humphrey Gilbert, and by taking a part, it is believed, in the wars in the Low Countries. He was, therefore, a complete soldier when he went to Ireland in 1580 to help in putting down the rebellion.

Some 600 Spaniards and Italians had landed in Ireland, and had encouraged the Irish to rebel against England. They had garrisoned a fort at Smerwick, and when they were conquered, Raleigh was ordered to punish them, and he executed every one of them. That seems a terrible crime in our days, but it was deemed then quite the right thing to do.

During this campaign Raleigh got to know Edmund Spenser, the great poet, and afterwards succeeded in

getting him introduced at the English court. Meantime, however, Raleigh, though he had once or twice appeared at the court of Elizabeth, had not yet been recognised there. After the Irish adventure, however, he was sent to London with a report of the battle, and, being befriended by the Earl of Leicester, who was at this particular period a favourite of Queen Elizabeth, he himself was soon greatly favoured by the queen.

HOW QUEEN ELIZABETH WALKED OVER THE RICH ROBE OF SIR WALTER RALEIGH

Queen Elizabeth was at this time nearly fifty years of age; Raleigh was not yet thirty. He was tall and handsome, with dark, flowing hair, and a complexion like that of a Spanish beauty. He was graceful and active, and a man of great physical power, known to be as brave as a lion; he was a charming poet, a man of great learning, and gifted with fiery eloquence.

What wonder, then, that he should win the heart of the vain though able queen? The story of their first meeting is well known, but we may recall it. The queen, on leaving her palace, had found a muddy puddle lying before her. Raleigh, who saw her distress, instantly stripped off the rich plush robe which he was wearing, and spread it before her so that she walked dry-shod over the mud. Very soon Raleigh became prime favourite of the queen, and she made his fortune. She allowed him to levy taxes upon wines and woollen cloths; she made him a vice-admiral and warden of the royal mines in Cornwall. She knighted him, and he was elected a member of Parliament. For five years Raleigh had no rival at court, and in this time he heaped up riches, and spent them as liberally as they came.

THE FIRST MEMBERS OF THE HOUSEHOLD CALLED THE BRITISH EMPIRE

It was in 1584 that he fitted out at his own cost an expedition to explore the American coast north of Florida. The queen agreed to the plan, though she could not bear to let Raleigh himself go. The sailors of his fleet had good fortune, and took possession for Raleigh of a great area of land which Queen Elizabeth, "the Virgin Queen," herself named Virginia. Next year Raleigh sent out a strong fleet, bearing people who were to settle down in the new land, the first colonists ever sent out by England. They settled on Roanoke Island, now in North

Carolina. Up to that time Great Britain did not own a foot of land beyond her own borders. Raleigh's scheme gave her the foundation of her Colonial Empire. The venture was not a success. Several ships were sent out. One hundred men remained for a year, and then were brought home. Next, fifteen men were left, but they disappeared. After that a party of 108 colonists, of whom seventeen were women, was despatched, but these disappeared, and were never heard of again.

Raleigh then gave up the effort. It had cost him \$200,000 out of his own pocket, an enormous sum in the money of that age, and, so far as he was concerned, the scheme was a failure. But it gave the people of Great Britain a new idea. The importance of oversea possessions began to be realised, and there grew up the idea of a big fleet of ships, both for trade and for war, which has since made that country the greatest naval power the world has ever seen.

THE FIRST POTATOES GROWN IN IRELAND & THE FIRST TOBACCO GROWN IN ENGLAND

A cloud now appeared upon the horizon of Raleigh. A new court favourite appeared in the person of the Earl of Essex, and Raleigh, who could not tolerate a rival in the favour of his sovereign, quitted the court and went to Ireland. His visit was important to Ireland. The queen had given him an estate there, and in his garden he planted the first potatoes ever grown in that country. These had been brought back, with some tobacco, by some of the men whom he had sent to the New World. Potatoes have proved of immense importance to the whole of Europe, but to no other country are they more vital as food than to poverty-stricken Ireland. Raleigh was the first man of rank to smoke tobacco in England, and the first tobacco ever grown there was in the garden of Lord Burghley, in the Strand.

The coming of the King of Spain's great Armada soon recalled Raleigh from Ireland. He busied himself in preparing the defence of the coast, and he, himself, spent a week on the fleet which helped to destroy the ships sent by the proud Spanish sovereign for the destruction of England. Gradually Raleigh recovered his lost position at court, and persuaded the queen to fit out a fleet to attack the Spaniards. She would not let *him* go, but his valiant cousin, Sir Richard Grenville, went, and

his little ship, the *Revenge*, left to itself, fought a marvellous battle against the whole Spanish fleet.

Raleigh afterwards celebrated the feat in a magnificently written narrative, and 300 years afterwards his story formed the foundation upon which Tennyson based his poem, "The *Revenge*." Raleigh now fitted out, largely at his own cost, another and larger fleet for the same purpose, and was allowed by the queen to go out with it to a certain point, to start it well on its way. When he returned to London, he was immediately cast into the Tower. The

Raleigh had to be released from prison to go down to Dartmouth and keep order while the affairs of the prize-ship were settled. For this he was given his liberty and \$ 80,000, only \$ 10,000 more than he had spent on the expedition. He quietly married the lady of his love, and settled down at Sherborne, in Dorsetshire, where he had leased an estate.

But his active mind was soon busy with larger schemes than house-building and tree-planting. There were many rumours of a city of fabulous wealth in South America. Prevented from going



THE POET SPENSER READING HIS FAMOUS POEM. "THE FAERIE QUEENE," TO SIR WALTER RALEIGH

reason was that, while enjoying the favour of the queen, he had dared to fall in love with Elizabeth Throgmorton, one of the queen's maids of honour. The old queen, who had had so many lovers, could not endure such a thing in her favourite, and kept him a close prisoner for six months, treating the unfortunate Elizabeth Throgmorton in the same way.

Raleigh's imprisonment was ended in a strange way. The fleet which he had sent out brought home a richly laden prize. So great was the disorder among the dishonest people of the port that

himself, Raleigh sent out a ship to seek this city of silver and gold, and though from this he got no definite news, he was sufficiently satisfied to set out in search of it himself. He reached the River Orinoco, and in small boats went up its course, and along some of its tributaries, fighting against tremendous currents, and against sickness and privation. He was compelled to turn back, but brought with him quartz containing gold, and also the first piece of mahogany ever seen in England. When he got back, his enemies declared that the whole story of his exploration

was false. To prove his case, he wrote a splendid book called "The Discovery of Guiana," that being the name by which the country now called Venezuela was then known. He drew maps showing his route, and long after his death all his statements were proved to be true. A gold-mine of which he spoke was actually discovered in 1849. Raleigh's next exploit was in an expedition against Cadiz. He was not the leader, but it was upon his advice that the two leaders acted, and the action was a mighty triumph for his military genius. In another naval action, under Lord Essex, he again distinguished himself. Indeed, had it not been that the queen was at first so fond of him that she would not let him go out on the earlier expeditions, Raleigh's career on the sea must have been the greatest of the age. Raleigh's success in the second action made Essex, his old enemy, jealous. Essex never forgave him, and after many intrigues he declared that Raleigh had tried to have him murdered, a story that proved to be utterly false.

HOW RALEIGH WAS TRIED FOR HIS LIFE ON A CHARGE OF TREASON

Essex was eventually executed for rebellion, but Raleigh's enemies remained many and powerful. They had their way at last when, in 1603, Elizabeth died, and James VI. of Scotland—a man unworthy of the least respect—became King James I. of England. Raleigh's enemies pretended to James that Raleigh had tried to prevent him from coming to the English throne, and James removed him from all his offices. Soon Raleigh was brought to trial on a false charge of treason and conspiracy. Raleigh behaved magnificently, with the eloquence of the scholar and orator, and with the dignity and firmness of a hero, but he was condemned to death.

The trial created a great impression. Many men had been offended by his haughty ways, but at this trial they remembered what he had done for the honour and glory of the country. One who had hated him said: "When the trial began I would have gone a hundred miles to see Raleigh hanged; before the trial closed I would have gone a thousand miles to save his life."

Raleigh was taken back to the Tower, but the king dared not carry out the sentence of death. He left Raleigh to languish in prison. His wife and family were allowed to live there, too, on paying \$1,000 a year. Here Raleigh was visited

by the great scientists and poets and scholars of the day, some of whom were, like himself, prisoners in the Tower. His best friend, however, was Prince Henry, the eldest son of King James, a fine young prince. He loved Raleigh, and declared: "No man but my father could keep such a bird in such a cage."

HOW THE GREAT TRAVELLER WROTE THE HISTORY OF THE WORLD IN A DUNGEON

For the guidance of the prince, Raleigh wrote some notable works on politics and statesmanship, and began for him his famous "History of the World." This ran to 1,300 pages before the young prince died, and Raleigh then lost heart, and left it unfinished. In it is some of his noblest writing, but it was so frank that the king had it suppressed, because he said it spoke "too saucily of kings."

Raleigh had a little laboratory in the Tower, which he made out of a poultry-house, and in this he conducted many scientific experiments. He found out how to get pure salt from sea-water—an art of which we hear little more until 300 years afterwards. For thirteen years he was kept a prisoner, and men grieved for him. The thought of this great traveller, warrior, and scholar cramped in the little cell at the Tower, which we may see to-day, made their hearts bleed.

In 1616 he was released to go on another treasure-hunting expedition up the Orinoco. He was allowed to leave prison on the condition that he should bring back to England at least half a ton of gold ore similar to the piece he had previously brought. "It is very difficult," answered Raleigh, "for any man to find the same acre of ground again in a country desolate and overgrown which he hath seen but once, and that sixteen years since." Still, he was willing to try.

THE LAST SCENE IN THE LIFE OF ONE OF THE GREATEST ENGLISHMEN

His crew was composed for the most part of bad characters, and the expedition was a hopeless failure, dogged by storms and sickness. The attempt to find the gold-mine failed. But he dared not think of returning home empty-handed. He thought that he would, as in the old days, capture some Spanish treasure-ships. "They do not call men pirates who capture millions of money," he argued, in the manner of the times. But the men would not follow him, and he had to return home penniless. There had been some fighting between his men and the Spaniards, and as

RALEIGH'S FIRST MEETING WITH QUEEN ELIZABETH



Sir Walter Raleigh was a man of quick decision and resource, and the story of his first encounter with Queen Elizabeth is typical of his character. The queen had just come out of her palace, and seeing a puddle she hesitated about stepping into it. In a moment Raleigh laid his plush coat in the puddle for Elizabeth to walk on.

there was peace at this time between England and Spain, this fighting was declared to be a crime worthy of death. So Raleigh was again cast into the Tower, and led forth to execution at Westminster on October 29, 1618. He was courageous and dignified to the last.

It has been said that on the last night of his life he wrote a beautiful poem, for which his name will be remembered, but the poem was written long before the last night came, and not in view of the terrible fate which befell him. The calm resignation with which he met his unjust fate, however, was in perfect keeping with the spirit of this little poem, which Raleigh might well have composed in his last hour. The poem is called "The Conclusion," and has only eight lines:

Even such is Time, that takes in trust
Our youth, our joys, our all we have,
And pays us but with earth and dust;
Who in the dark and silent grave,

When we have wandered all our ways,
Shuts up the story of our days;
But from this earth, this grave, this dust,
My God shall raise me up, I trust.

As he laid his head on the block, someone said that he ought to kneel with his head towards the east. "What matter," said Raleigh—"what matter how the head lie so the heart be right?"

So perished one of the greatest men of the great days of Elizabeth. He was not a perfect man; no man is perfect. He had grave faults, but they were the faults of his time. With all his failings he was a hero and a scholar of the highest type. In happier days he might have become famous throughout the world for science, literature, and poetry. With a queen less anxious to keep him at court, he would have been immortal as an explorer and an admiral. As it was he left a record for gallantry and learning equalled by very few men of any country.

TWO MEN I HONOUR

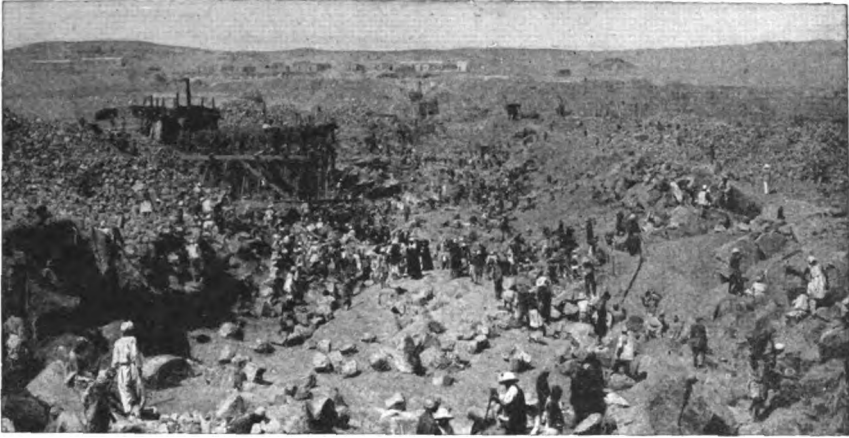
Two men I honour, and no third. First, the toil-worn craftsman that with earth-made implement laboriously conquers the earth and makes her man's. Venerable to me is the hard hand—crooked, coarse; wherein notwithstanding lies a cunning virtue, indefeasibly royal, as of the sceptre of this planet. Venerable, too, is the rugged face, all weather-tanned, besoiled, with its rude intelligence; for it is the face of a man living manlike. Oh, but the more venerable for thy rudeness, and even because we must pity as well as love thee! Hardly-entreated brother! For us was thy back so bent, for us were thy straight limbs and fingers so deformed: thou wert our conscript, on whom the lot fell, and fighting our battles wert so marred. For in thee, too, lay a God-created form, but it was not to be unfolded; encrusted must it stand with the thick adhesions and defacements of labour, and thy body was not to know freedom. Yet toil on, toil on: *thou* art in thy duty, be out of it who may; thou toilest for the altogether indispensable, for daily bread.

A second man I honour, and still more highly, him who is seen toiling for the spiritually indispensable; not daily

bread, but the bread of life. Is not he, too, in his duty; endeavouring towards inward harmony; revealing this, by act or by word, through all his outward endeavours, be they high or low? Highest of all when his outward and his inward endeavour are one, when we can name him artist, not earthly craftsman only, but inspired thinker, who with heaven-made implement conquers heaven for us. If the poor and humble toil that we have food, must not the high and glorious toil for him in return, that he have light, have guidance, freedom, immortality? These two, in all their degrees, I honour; all else is chaff and dust, which let the wind blow whither it listeth.

Unspeakably touching is it, however, when I find both dignities united; and he that must toil outwardly for the lowest of men's wants is also toiling inwardly for the highest. Sublimar in this world know I nothing than a peasant saint, could such now anywhere be met with. Such a one will take thee back to Nazareth itself; thou wilt see the splendour of heaven spring forth from the humblest depths of earth, like a light shining in great darkness.

THOMAS CARLYLE.



This picture shows the beginning of the great dam at Assouan, which has turned the banks of the Nile into a flourishing garden by storing up the waters of the river for use in time of drought.

MAKING THE DESERT BLOSSOM

CONTINUED FROM PAGE 5371.

WE are proud of our great poets and painters, we exalt as heroes our great soldiers and sailors, we exalt still higher our great seers and prophets. We are apt to forget the engineer. And yet, without the engineer, the human race could hardly have moved from a state of barbarism.

If we think what the earth was like in the dawn of human history, we see how enormous is our debt to the engineer. To begin with, the earth was covered by a dense forest; roads did not exist. Rivers ran where they listed. Mountains obstructed the way. The sea forced itself where it would.

In the midst of this savage earth was man, the weakest and most defenceless of creatures, not fleet enough to escape from the tiger, not powerful enough to fight with the lion, not strong enough to withstand the severities of Nature. But he had one gift greater than all other creatures, *cunning*, and this cunning became reason, and with this reason man was able to withstand Nature.

Is there not something splendid in the thought of our earliest ancestors pitting themselves, in the midst of ignorance, against the terrible forces of Nature? The superstitious priests would have had the race tremble and cower before the thunder and lightning,

would have kept man on his knees in a dumb terror before the awful mystery of death. But there was in the first man who looked about him, and studied things with quiet eyes, the soul of the engineer. He saw that things could be altered. He set himself to alter them.

And the result is written on the earth in a thousand ways. The earth is, indeed, the work of God's hands, but God has used man's hands to perfect it. Nature would have destroyed our race many centuries ago if man had not set himself to govern and control the earth.

Look at what man has done. Across the earth are stretched beautiful valleys and rich pastures where cattle, such as the first men of our race never dreamed of seeing, feed in security both from wild beasts and from disease. Roads run from north to south, and from east to west, on which wheels, tyred with rubber, may travel at the rate of express trains.

Towns that are far removed from river and sea send their commerce to other lands along wide canals which man has dug out of the earth. Huge mountain ranges, over which Napoleon had to drag his cannon, are now pierced by tunnels, and trains, lighted by electricity, run through from end to

end. Ports threatened by the tempests of ocean are guarded by breakwaters, and ships lie within immense harbours safe from the fury of the waves.

Rocks which threatened destruction in the midst of the sea have become messengers to sailors, holding aloft a flame of light which shows the way and warns of danger. Cities have vast stores of pure water brought to them from mountains hundreds of miles away.

HOW THE ENGINEER HAS TRANSFORMED THE FACE OF THE EARTH

The mighty power of waterfalls, for centuries wasted and profitless, has been harnessed by the engineer to the service of men, and now makes electric light and drives electric cars in cities many miles from the thunder of its waters.

Across wide and fast-flowing rivers the engineer has thrown his bridges, and sent his trains running in safety from shore to shore, linking up places eternally separated. And under the ocean, and in the invisible air, man can send messages from continent to continent, as quickly as he can go from one room to another.

But there is one aspect of the earth's surface which has defied man—the desert. What can man do with sand? Under a pitiless, burning sun, rolling away into distance for ever and ever, lie over three and a half million square miles of desert—the Sahara, as big as all Europe. What can man do there but bow his head and marvel at the work of Nature? Half stifled by the dust, half blinded by the glare, and half frightened by the terror of this immense waste of the earth's surface, generations of men have gone by, leaving it there as a miracle of God, something that passes the power of man to alter, or the wit of man to comprehend.

THE MAN WHO HAS MADE THE DESERT BLOSSOM AS THE ROSE

The Nile overflows its banks and leaves a coating of mud over a part of this desert. The people throw seed upon this slime, and wait for it to grow. But when the Nile failed to overflow its banks, famine marched through the land, and men used to die like flies.

The engineer came to the desert, looked long at it, looked longer still at the mighty Nile, and then said: "This can be altered!"

While the desert fainted for moisture, the Nile was carrying millions of tons of water to the sea. The engineer said: "I will stop that waste of water!"

And then followed one of the mightiest works ever undertaken by the children of men. Two great dams were built across the Nile. There was a woeful outcry from sentimental travellers. "You will drown the beautiful ruins of Egypt; you will spoil the wonder of her scenery!" But the engineer worked on. His object was to convert ruin into life; not to guard the pillars of an empty temple, but to set up such a monument to the strength and power of man as should stand the wonder of the ages. And this he has accomplished. He has made the desert blossom and bring forth food for the use of man.

Can we think of anything more romantic than the building of these immense dams? Thousands of millions of tons of water have been "bottled" by the engineer. A telegram comes saying that water is wanted in a certain province. A button is touched; gigantic gates open, and the required amount of water flows out as easily as when we turn on a tap in our house. Yes; and how has the great wonder been accomplished?

THE ROMANCE OF THE BRITISH ENGINEER IN THE LAND OF THE PHARAOHS

Camels, like those which crossed the desert with spice in the days of Pharaoh, have been harnessed by the British engineer to this almost superhuman task; they have come across the desert with the implements he needed, and have stood beside the steam-engine, in the midst of masonry and stacks of steel and iron, listening to the clatter of the hammers, the scream of the engines, the shunting and bumping of the trucks.

Ten thousand descendants of the ancient Egyptians have worked under their British instructors in the building of these dams, chattering in their ancient language as they carried steel forged in modern England. What an amazing romance it all is!

Perhaps it is best for the world that the engineer should not be honoured as a great hero. He is a man who must keep a level head. He can think best when he is least disturbed. And he has wonderful work to do.

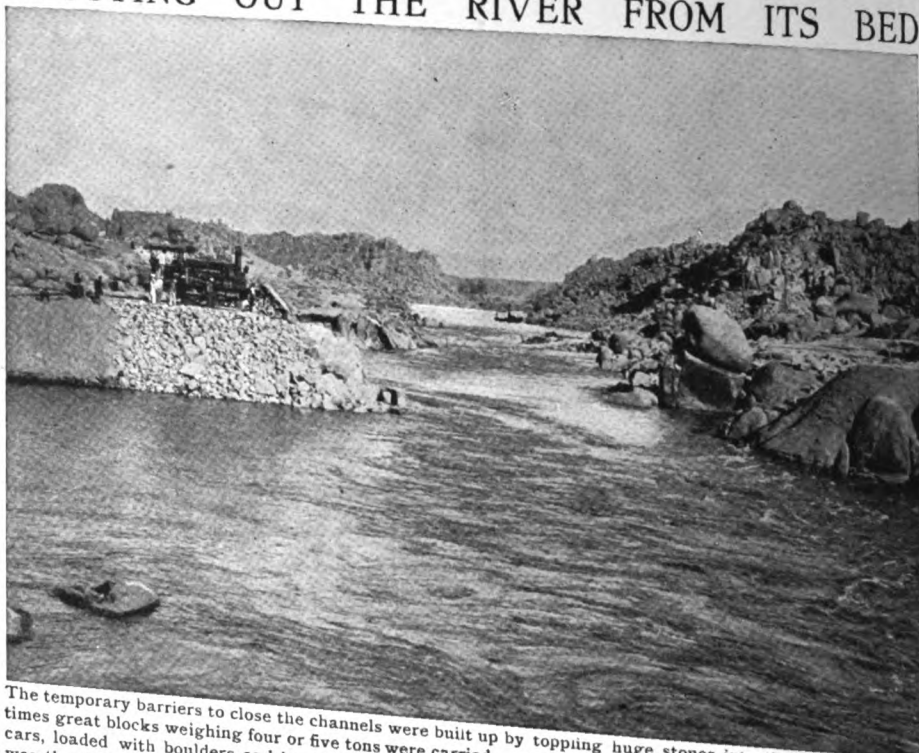
But we do well to remind ourselves sometimes how enormous is the debt which civilisation owes to this quiet, thinking man of action, who never dreams, never dwells in the clouds, but makes the earth a happier and a more comfortable habitation for mankind.

HARNESSING 1,000 MILLION TONS OF WATER

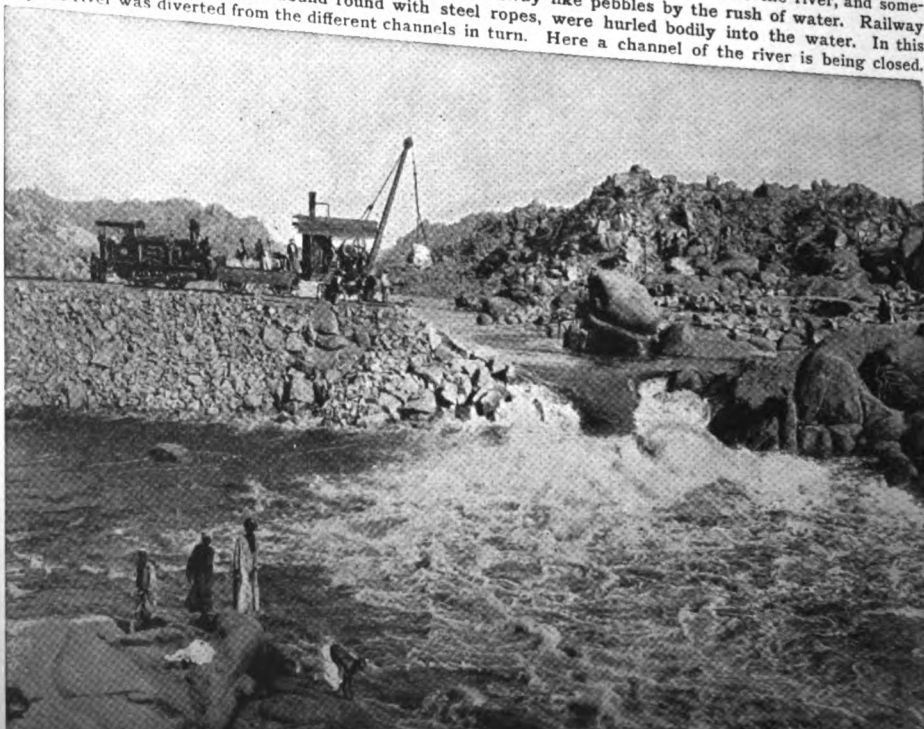


The great dam across the River Nile at Assuan, which stores up a thousand million tons of water for use as it is required, is one of the engineering wonders of the world, and is certainly the most wonderful work which Sir John Aird, the famous British contractor, has ever carried out. It took over four years to build, and contains more than a million tons of masonry and 75 000 tons of cement. Much of the granite used came from the same quarries as the stone for the facing of the Great Pyramid, which contains five times as much masonry as the dam. Assuan was selected for the dam because the river is there broken up by a number of islands and runs through several channels. Temporary barriers were built above and below the site selected for the great dam, and the water in between was pumped out so that the foundations could be laid in the river-bed. The foundations were also laid deep on the islands, as shown here, for the dam is built straight across river and islands

SHUTTING OUT THE RIVER FROM ITS BED



The temporary barriers to close the channels were built up by topping huge stones into the river, and sometimes great blocks weighing four or five tons were carried away like pebbles by the rush of water. Railway cars, loaded with boulders and bound round with steel ropes, were hurled bodily into the water. In this way the river was diverted from the different channels in turn. Here a channel of the river is being closed.



The narrower the channel became, the more difficult was the task of closing it, owing to the stronger rush of the water. This picture shows a channel almost closed. Masses of rock, four or five tons in weight, are being let down by a crane. Finally, the trucks full of stones were thrown into the gap, and the barrier completed.

DIGGING A CHASM IN THE BED OF THE RIVER

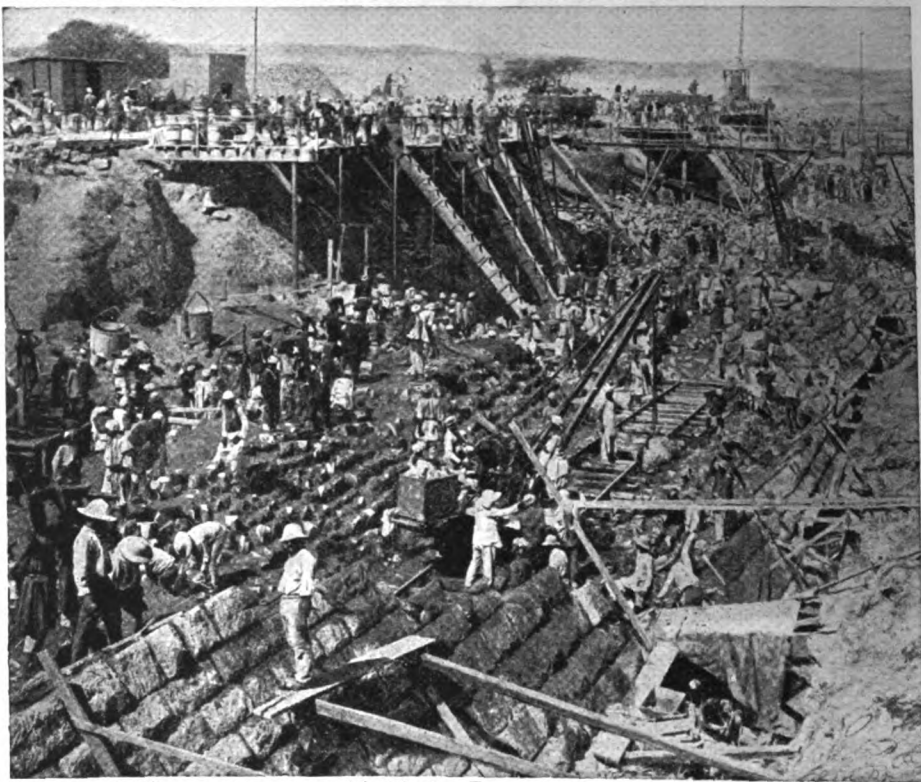


The stone barrier was supported by a barrier of sand, and another sand barrier was built down stream, 1,500,000 bags of sand being used. It was not necessary to make the down-stream barrier so strong as the up-stream one because the force of the water was already broken. Here we see one barrier completed and another nearly finished.



As soon as the water was pumped out of the river between the two barriers, work was begun upon the foundations of the dam, as shown here. So unstable was the river-bed that the engineers had to dig forty feet deeper than they had expected, in order to get a sure foundation. Another dam to regulate the water stored up at Assouan was at the same time built at Assiout, 100 miles lower down the river. Here 17 steam-pumps pumped from between the temporary barriers 73,000,000 gallons of water daily, sufficient for a city of 2,000,000 inhabitants.

BUILDING THE STRONGEST WALL IN THE WORLD

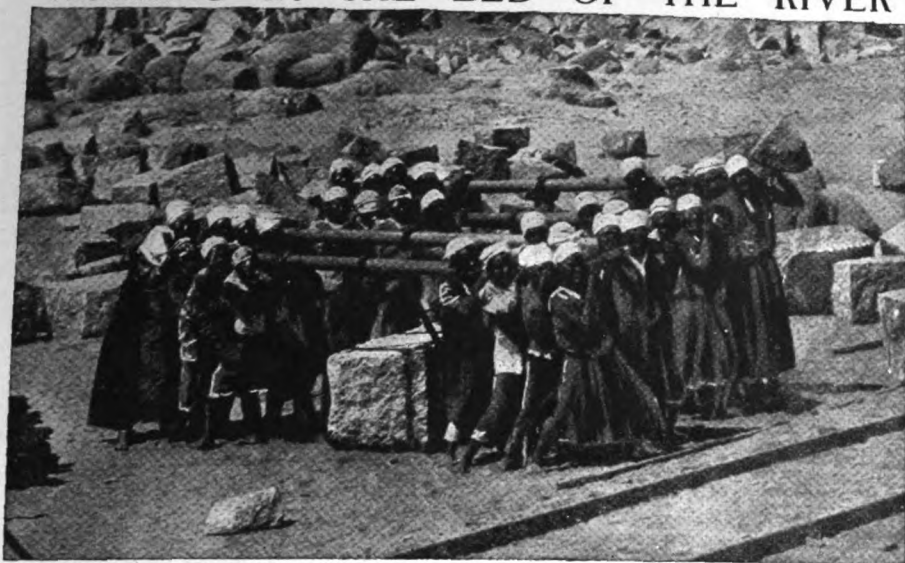


Here we see building operations on one of the islands. Twenty thousand labourers were employed upon the dam, and work went on day and night, huge arc lamps being used after dark. Great preparations were needed for the housing of so many workmen, and a year was spent in building a town of huts and laying railways to the quarries.



The dam, which is the strongest wall in the world, is a mile and a quarter long and a hundred feet wide at the foundations. The height varies, but the greatest height from the foundations to the top, as originally built, is 130 feet. The south side of the dam, against which the stored water presses, is perpendicular, but on the north side it is slanting, as shown here, so that the dam may resist the enormous pressure of water on its other side.

WORKING IN THE BED OF THE RIVER

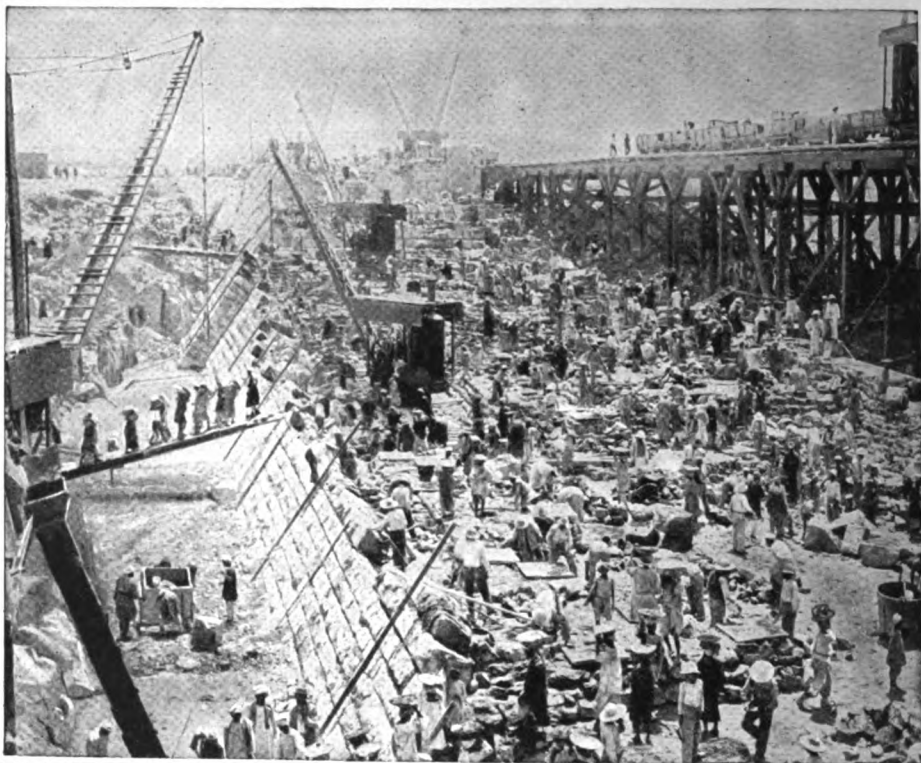


This picture shows how the labourers carried the blocks of granite from the quarries to the railway. Everything possible was done for the comfort of the workers. When the Alexandria canal was built, seventy years ago, 27,000 workmen died in the trenches, chiefly from sunstroke, but at Assouan scarcely a man died from this cause. Tents were set up at intervals, and when a man was overcome by the heat he was immediately taken to a tent and placed in an iced water bath, and a doctor was telephoned for. Telephones were fixed in all these tents.

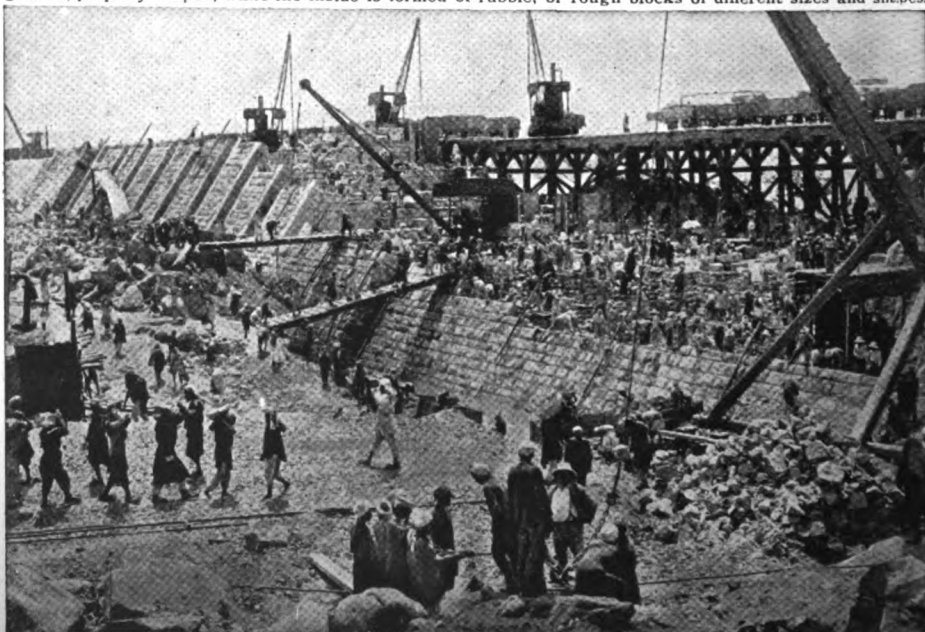


Here we see the busy scene at the bottom of one of the channels of the river, which is kept dry by the temporary barriers and the steam-pumps. Trains from the quarries run on to the bridge, from which the blocks of granite are lowered to the dam. It would have been impossible to build the Assouan dam in this way if the Nile had had more than one flood a year, as work was impossible during the flood.

PILING UP A MILLION TONS OF STONE



This is the same place as that shown in the lower picture on page , but this photograph was taken a few days later, and we see how rapidly the work progressed. The dam is faced on both sides with exceptionally hard granite, properly shaped, while the inside is formed of rubble, or rough blocks of different sizes and shapes.



As the flood time approached, the need for rapid work increased, so that the dam might be sufficiently substantial to resist the waters. On the left of this picture can be seen some of the sluices, or openings, of which the dam has 180. The huge gates that close these sluices average twenty feet in height and six and a half feet in width, and they withstand a pressure from the water of 210 tons. Yet the gates can be opened or closed quite easily.

THE GATES THAT SET FREE A WORLD OF WATER



The sluices in the dam are lined with cast iron, and here we see them being built. When all the sluices are open, the total width available for the passage of water is 427 yards, which is a little less than a quarter of a mile, and the water passing at any moment is equal to twice the flow over Niagara Falls.

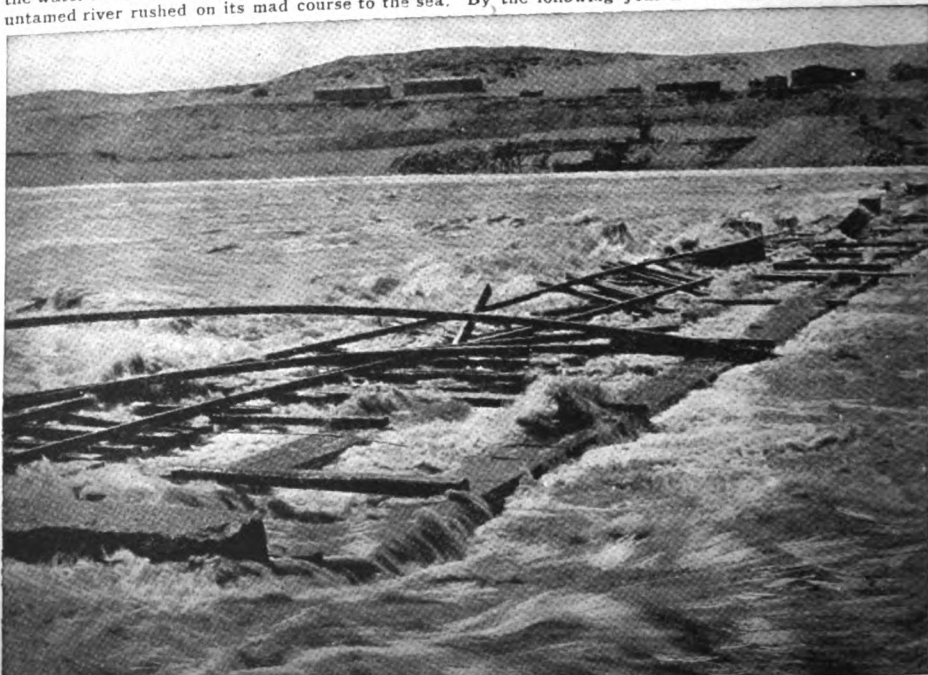


Once a year the melting of the snow in the Abyssinian highlands makes the Nile a rushing torrent, and by the time the river began to be in flood in 1900 the great dam was built as high as the top of the iron linings of the sluices. Then the up-stream temporary barrier was broken slightly, as shown in this picture, and the rush of the water soon swept away the whole of this barrier, which was no longer needed. The shock of water pouring through the sluices destroyed the loose rocky bed of the river, and a granite "apron," or floor, was laid for some distance from the dam.

THE LAST WILD RUSH OF THE UNTAMED RIVER

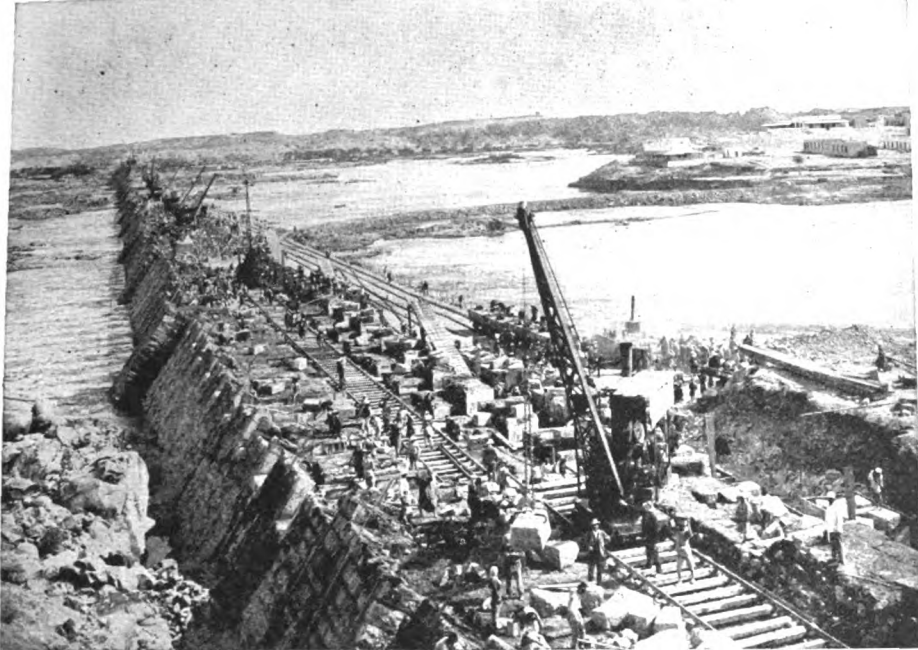


Here we see the river rushing through the sluices after the up-stream barrier had been burst. As can be seen in the picture below, the water rose until it swept over the top of the dam, but work was continued until the water had almost reached the top. Tools and cranes were then removed to shore, and for the last time the untamed river rushed on its mad course to the sea. By the following year the waters had been harnessed.

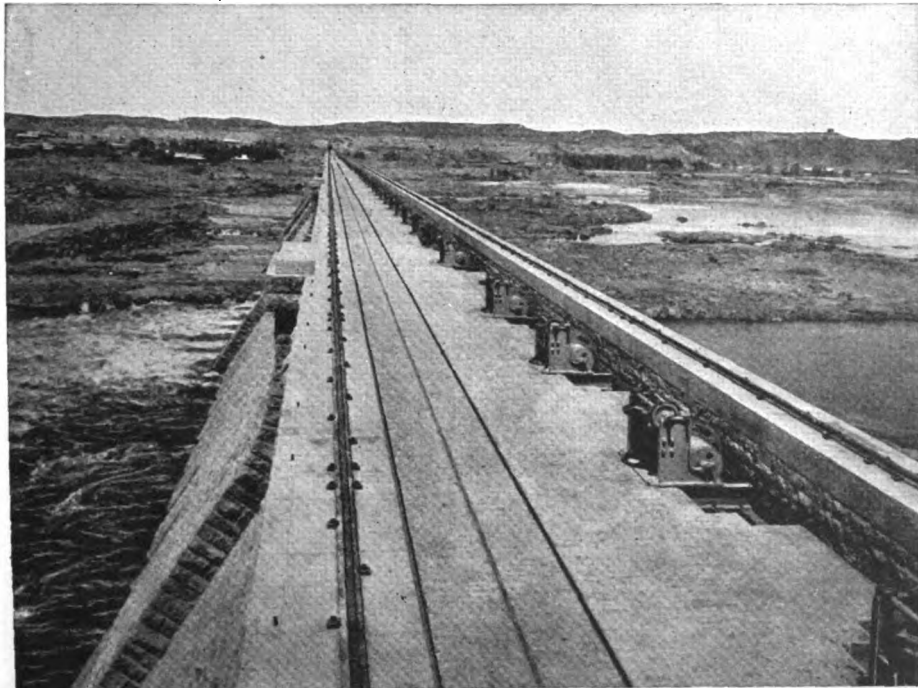


The unfinished dam is here seen at the mercy of the flood, which almost carried the railway lines away. The original idea for the dam was that it should be built high enough to keep in store 2,500 million tons of water, but this would have meant the flooding of the ancient temple of Philæ for a part of the year. To save this beautiful temple, therefore, the dam was made lower, and the store of water reduced to a thousand million tons. This, however, has been proved to be insufficient, and now the dam is being raised to store the larger quantity.

THE MIGHTIEST RESERVOIR IN THE WORLD



When the flood had subsided, work was resumed, and here we see it being completed. The Assouan dam, with the Assiout and other barrages—as the dams are also called—lower down the Nile, all forming part of the great irrigation scheme, is considered the greatest engineering feat in history. While the foundations of the Assouan dam are built into the rock, those of the Assiout barrage rest on sands, and are kept in position by their weight.



This picture shows the Assouan dam as finished in 1902. It has given to Egypt the mightiest reservoir in the world. The machinery along the top of the dam is for opening and closing the gates. When the Khedive opened the first five of these gates and let the water through, he used a key made in the shape of an ancient Egyptian amulet that was the symbol of life, because the wonderful dam that had been built meant life for Egypt.

LETTING LOOSE A MILLION TONS OF WATER

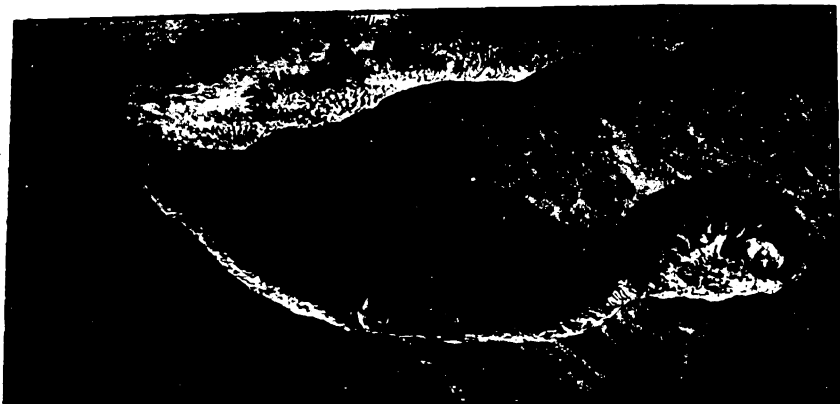


This is the south wall of the great dam that now stores up as much water as would supply the whole of the United Kingdom for a year. When the present extensions are completed, it will store up more than twice as much. Already, by means of this dam and the barrages lower down the Nile, over 400,000 acres have been watered, and have increased in value to the enormous extent of \$140,000,000. The irrigation works cost about \$30,000,000.



The great sluice gates, holding back a thousand million tons of water, are opened by electricity as easily as the turning on of a light, and the torrent of water sweeping through the openings presents a magnificent and imposing sight. More than a million tons of water rush through in twelve hours, and it is true that this wonderful torrent, controlled and regulated as it is, makes the wilderness blossom as the rose. A deep channel through the dam, for shipping, with four huge locks, keeps the river open for the navigation of the largest river steamers.

The next Familiar Things are on page



THE RABBIT AT HOME

HOMES NOT MADE WITH HANDS STRANGE DWELLING-PLACES OF ANIMALS

SUPPOSING that all living creatures were gifted with the power of speech, what song might we expect them to sing? If we can fancy such an impossible thing happening at all, may we not imagine that they would sing, as their favourite song, that song which is the favourite of every son and daughter of our own country, "Home Sweet Home"? To many species of animals, their homes are very dear, and they will endure the greatest hardships to defend them.

We all know how domesticated animals love their homes. The horse, the dog, and the cat would sing the song with all their might. A horse never forgets the place which has once been its home. One intelligent pony, revisiting a town to which it had not been for eight years, made a dash for its old stable the moment it saw the house at which its master had formerly lived.

A dog will travel hundreds of miles on foot to return to the spot to which the kindness of human beings has accustomed it. A cat so dearly loves its home that it will even remain behind in an empty house when the family goes. And think what wonders of flight the homing pigeon performs in order to return to the loft in which some kind boy or girl has made its home. What, however, of the animals

that we have not tamed? They have just as warm an affection for their homes, the dwellings which they have made for themselves and for their little ones. There is a good old English expression, "house-proud." A woman who is fond of her home, and likes to see it pretty and comfortable for everybody in it, is house-proud. Well, many of the animals are house-proud, too, and devote great labour and skill to the making of the places in which they live and rear their babies.

Seeing that the apes and monkeys rank next in the scale of life to man, we might expect them to show skill next to man's in the making of their homes. But they do not. The larger apes are content with a simple lodging in the trees of the great forest in which they live; and none of the monkeys ever makes any pretence at building a dwelling for itself. Are we to be disappointed at this? Not at all. As we all know, man himself, before he became civilised, was content with the rudest dwelling. A rough cave served, until wolves or hyenas came to quarrel over his bones. Man of the very early ages, though he was far superior in intellect to the highest of the animals, never had any home half so snug as that of the mole or beaver. Therefore, let us not think slightly of the apes and

the monkeys because they do not build elaborate dwellings for themselves.

The fact is that for the wonders of



THE INSIDE OF A MOLE-HILL

Nature's architects we have to go to the smaller birds and animals, and to the insects. These are the little workers which make us realise how very humbly we ought to view the works of men. Men with their wonderful brains have invented tools for every sort of work, but for all the wonders performed in the animal world there is not a single tool. We need not step beyond our own garden to see the ants at work; we have only to walk to the nearest meadow to find signs of the labour of the mole, even if the busy and impudent little gentleman does not actually venture upon our private property. Quite a little city under the ground is burrowed by the mole. The mole-hills with which we are all familiar are not part of the dwelling at all, so we need not dig down expecting to find Mr.



YOUNG MOLES IN THEIR NESTS

and Mrs. Mole and family at the bottom of one. The mole-hills are merely shafts which the mole has thrown up

in order to get rid of the loose soil which he has scraped away in making one of his tunnels. The actual home is not so easily found. It is hidden, as a rule, under a tree or large shrub, or in the bank of a field. If we can get a peep inside that, then the mystery of the mole's dwelling is at once made plain.

The main hall of the dwelling is a lofty, sphere-shaped apartment. Around the hall run two galleries, one level with the ceiling, the other higher still. The only way into the great hall is from the upper gallery, from which three passages lead through the ceiling; but there are five short passages connecting the upper gallery with the lower. Tunnels run in all directions from the home of the mole, but each one comes out into the lower gallery surrounding the hall, so that the mole, on arriving, must enter the lower gallery, run upstairs, as it were,



YOUNG FOXES PEEPING OUT OF THEIR HOME

to the upper gallery, then pop through one of the passages leading into the hall.

This, however, is not the only part of the dwelling of the mole; there is a little house for the children. This is a rather large chamber, made where two of the underground main roads or tunnels cross. We can see the reason for this; it affords the parent and her little ones ample chance of escape should danger threaten. The explanation of all the other passages round about the main hall is not so clear. We all understand that the height of the hall is to give proper venulation, for even under the ground, the mole must have air. For the rest, it is not easy to see why such elaborate defences should be required. Ferrets and weasels are not likely to go along a mole's run, and there can be no other underground enemies, unless it be other moles. That idea suggests an explanation. Moles, when

they are in love, are so terribly savage—male against male, of course—that, unless some such scheme of defence as we have been studying were made to keep out rivals, father and mother moles would never be able to bring up their families in peace. For, like male shrews, the moles fight until one is killed; and very often the victor is so badly injured in the battle that he, too, must die.

The shrew, tiny fellow that he is, is a great burrower, but not to be compared with the mole. The shrew's abode is a simple nest placed at the end of a straight, long tunnel constructed just below the surface. This can be reached easily by any other shrew, but woe betide the intruder; he will certainly be killed if he be a shrew, unless he kill the shrew already in possession. There are connecting links between the shrews and the moles, and we find characteristics common to



THREE VERY YOUNG HARES IN THEIR NEST

several different species of these animals.

There is a burrowing shrew in India, whose habits closely resemble those of our common moles. There is the desman, which is abundant in the wilds of the Russian Empire, and which once lived in England—an animal whose habits resemble those of our pretty little water shrews. But whereas our furry little creature is content with a mere hole in the bank for his home, the desman makes himself a noble hall at the end of the burrow which leads from his stream. He passes the greater part of his time in the water, but when he comes out to take a nap in his home, his fur is as dry as the feathers of a duck. The fur of these swimming animals never really gets wet; air collects about each separate hair, and the animal swims in what is practically an envelope of air.

Of course, the king of workmen among

the animals whose life is divided between the water and the land is the beaver. He must have water in which to swim; he must have a snug, dry home for the



A HEDGEHOG FAMILY AT HOME

night. He comes to a stream which, while of sufficient depth at the time, may in dry weather become too low. So he sets to work, and with his powerful teeth gnaws at the trunks of trees until the latter fall, then cuts them up into logs; and with these, and with mud and stones and twigs and all manner of vegetation, builds a sort of wall or dam, as we call it, across the stream. This causes the water to collect at this spot until there is a sufficient depth to flow over the top of the dam. There will always be water there, unless the stream above the dam actually runs dry. The beaver may now make his home, satisfied that there will be at his door the constant stream which he needs. The house which the beaver builds is a masterpiece of skill. It is built of mud, into which are forced branches



A NEST OF YOUNG SHREW MICE

of trees, and the whole is beaten so solid that, when the frosts of winter come, the lodge, as it is called, is as hard as iron.

The dwelling is about six feet in diameter, and three feet high. Inside, all is snug and warm, the beds being arranged round the walls, so that father and mother beaver and the family can all be accommodated until the time comes for the little ones to go out into the world to make homes for themselves. Two passages lead from the lodge into the water. One of these is fairly high up, but opens out below the level of the water. The other opens out at a lower point, so that, should the water be frozen at the surface, the beaver can get out by the lower one to reach the store of bark which it has hidden to be its food supply in winter.

The labours of the beaver are really of an almost unbelievable character, so extensive, so thorough, and so wonderful in design and execution are they; but we must not exhaust our admiration here, for there is another little creature, the web-footed mole, who, though he is web-footed, is not a swimmer, but a landsman all his days, and a miner above all else. This mole makes a home underground which some of the friends of "Alice in Wonderland" might envy. The marvel of it is, however, the pace at which this creature works. A reliable observer tells us that he has seen a passage nearly a hundred yards in length made by one of these moles in a single night when the soil has been rendered soft by rain. Now, what does that amount of work mean to a mole? It means this: that if a man were to perform a task equal in proportion to his size he would have to bore in one night a tunnel, big enough to admit his body, thirty-seven miles long! Let us remember that, when we think that as human beings we do wonderful works.

With the beaver in mind, we might expect the otter, a king of the water and a fairly nimble animal on land, to be clever enough to make himself a nice hole in the banks of the rivers which he frequents. But he is like the early men—content with ready-made refuges, and these are in or near the river-bank. These he may scrape and shape according to his liking, but it is not known that the otter ever sets out and makes a home for himself where there is not some natural retreat already in existence.

The weasels are specially shaped for making their way in narrow, twisting passages underground, but they do not trouble to make homes of this character;

they seek shelter above ground. The weasels must be content to share the reflected glory springing from the feats of the big man of their family, the badger. He is a miner of rare ability, scooping out long, winding passages leading to his underground hall, his nursery, and other apartments, which are fashioned upon the most approved plan with regard to ventilation. This is secured by his making seven or eight passages, opening thirty paces apart. Each of these passages leaves open a way of escape in case of attack upon the fortress, but each also carries sweet air to the home.

Men who know the fox only as an animal which they hunt would scarcely think of looking for their prey in the hole of a badger, but Master Reynard is sometimes found there. It is not because the fox cannot dig a home for himself that he has to seek the shelter of the badger's home. He is cunning enough to turn the badger out of his home, and make the place his own. He enters the badger's house, and the big weasel, knowing that he has nothing to fear, permits the intrusion. But while the badger is a very cleanly animal, the fox is not; at any rate, he is not when he takes up his home under the roof of his friend, the badger. So the badger, unable to tolerate the vexatious presence of the uncleanly fox, goes off and makes a new home, leaving the fox in possession.

The badger's is not the only home which the fox takes, as the poor rabbit knows to his cost. The European wild rabbit is a splendid excavator. He sinks a steep, sloping shaft into the ground, then, having gone some distance down and forward, burrows in an upward direction, and at the top of this rising shaft makes a big chamber for himself, wife, and family. Sometimes a fox, following a rabbit home, digs his way into the burrow, eats up the poor little rabbit, then, finding the burrow warm and nice, settles there himself.

The simple shaft of the rabbit which we have been thinking of is not all that this animal makes. A few weeks before this story was written, the writer stood in a low-lying field looking up at a bank above which runs a quiet little highway. This bank is simply honeycombed by rabbits, who have made their runs right through the bank, under the whole of the roadway, and into the fields on the other side of the road. But we do not see the

THE LITTLE DOGS THAT BUILD A TOWN



The pretty little prairie marmot is often called the prairie dog because of its yelping, that sounds like the bark of a dog. It is found in large colonies, and it burrows tunnels in the ground. Thousands of these homes, which are deep down, are burrowed close together, so that the ground is rendered unsafe for horses. Over the burrows are mounds of earth, and the ground above a prairie-marmot colony resembles a miniature town of huts.

entrances to their homes. No. Running right along the foot of the bank, they have excavated a tunnel, pierced by scores of little openings. Behind this screen are the openings to the rabbits' castles in the soil. At any alarm, the rabbits bolt to the tunnel, enter by one of the little doorways, then turn to right or left, and gain their homes without the whereabouts of their retreat being discovered.

The fox we have been discussing is the English red fox, but we Americans have a grey fox, which makes a snug home in the stump of an old tree. The Arctic fox is more industrious, as it needs to be,

summer, and there makes his summer dwelling, which serves for nightly shelter and also for a refuge in time of bad weather. When the early snows of winter come, down the mountains troop the marmots, bringing their little ones with them. When they reach the quarters in which they are to pass the winter, they work in parties of from fifteen to twenty, digging a long tunnel in the earth, and at the end of that a lofty, circular room. They carry in a large quantity of grass for bedding, blocking the entrance to the home, then go snugly off to sleep for the winter. Other species of marmots



THE STRANGE LITTLE DUCKBILL PLATYPUS IN ITS UNDERGROUND HOME

in the fearful cold of the winter which it has to endure. To make the best of matters, Arctic foxes collect in colonies of from thirty to forty, and dig deep burrows in the earth, all the burrows being close together, and in these they defy the cold. But each fox has his separate suite of apartments, so to speak. He digs a main tunnel, with a set of rooms and a number of passages at the bottom, and no fox penetrates the estate of his neighbour.

Smaller animals work quite as hard as the Arctic fox. The marmot is a little giant of industry, and makes two homes every year. He goes up the Alps in the

are content with one residence for winter and summer, but they are none the less busy little builders.

The biggest marmot colonies are those in which the prairie marmots, or prairie dogs, as they are sometimes called, reside. Their cleverly-made homes are so numerous that they often cover as much as 200 acres of ground. They make excellent tunnels and chambers, and the earth that they excavate remains at the entrance; or, rather, we should say that a dozen entrances to as many burrows are grouped round these mounds, upon which sentinels watching for an enemy take their stand, and sound a sharp

"tweet, tweet!" at the first sign of alarm, sending the whole colony racing down their tunnels.

In our own woods we may find a splendid little builder in our own pretty squirrel. He does not go underground, but makes a nest which a bird might envy, either in a hollow of some tree-trunk, or in a fork of the branches, high up out of danger's way. First he makes a strong flooring and sides, and roofs these over with a little dome, all being of twigs, so closely woven that the rain and wind, which he hates, cannot enter. The inside he lines with the softest moss, and the little home is as snug as one could imagine. But he must have air, so he leaves open a little doorway, by which he enters from below, and has another opening on the opposite side by which he can escape should an enemy seek to attack his house. If rain or wind assails the house, all that he has to do is to plug up the two openings with moss, and there he is, as neatly housed as any little brownie in the story-books.

Two more burrowers we must notice, the echidna and the duckbill, or duck-billed platypus. These are the animals which lay eggs, and belong to the strange families of Australasia, where the animals are so different from the animals of the rest of the world. The echidna, which is an ant-eater, makes his home underground without difficulty, thanks to the

enormous power which he possesses in his long and sharp claws. The duckbill, however, though his home is on land, gets his living in the water. Long experience of the natives has taught him to be very cautious, and he selects for his home a quiet stream opening out into reedy, solitary pools, in which he can find his food of vegetable matter, shell-fish, worms, and so forth.

In order that he may gain the water without attracting attention, the duckbill enters from a tunnel which runs down from his home below the surface of the pool. This tunnel winds up through the soil for as much as fifty feet, and leads to a big, well-shaped chamber, which is lined with grass and is cosy and secure. In order to let in air to the dwelling, the duckbill drives a second tunnel from the sleeping apartment to the surface of the soil, making the opening in the midst of thick vegetation where it cannot be discovered, except by the marvellous eyes of the Australian native. The duckbill has in this second tunnel a way of escape, should he be attacked from the first tunnel; but he will always take to the water if he can, for with his webbed feet he makes but poor progress on land.

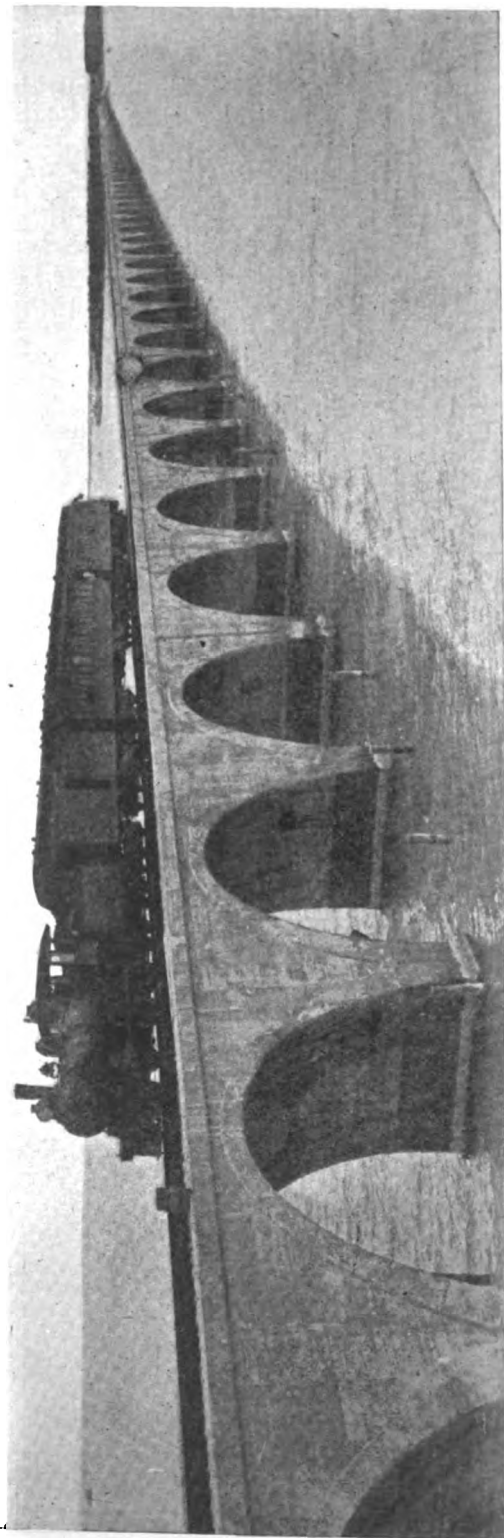
We have only just glanced at a few of the clever home-builders of the animal world, but even a glance convinces us that in their way these little builders are not to be surpassed among men.

THE NEST OF A CALIFORNIAN HUMMING BIRD



Humming birds' nests are always hard to find, as they are very small, and covered with material similar to the twigs on which they rest. This nest has been tilted to show the eggs. In the east, the ruby-throated humming-bird generally puts her lichen-covered little cup on an apple-bough. One can sometimes find it by following the birds as they fly back to it. The beautiful, fairylike nests of humming birds can be seen in most museums.

THE TRAIN WHICH GOES TO SEA



5418

A railroad is almost completed from the



CONTINUED FROM PAGE 5350.

THE LITTLE SPINNER AT THE WINDOW WHY THE FINE SHAWLS COME FROM SHETLAND

LONG ago, far away in the Shetland Islands, there once lived a little lame girl called Grete. Her home was built on the shore of a voe, or sea lake, that ran quite a distance inland. It was built of rough stones, and had only one window.

The roof was covered with green sods, with big white daisies and other flowers growing on it; wreathed, too, with ropes of seaweed, wound round stones, to prevent the sods from being blown off in high winds. There was no garden, but the ground was covered with fine white sand, full of little pink and white and yellow shells, for the green waves curled at its edge only a little way off.

There was a fire of peat in the middle of its only room, and as there was no chimney the smoke had to find its own way out, so the walls looked black and dismal. Then, a calf or some lambs, or even some little pigs, often shared the fireside in cold weather, and there was scarcely any furniture, for Grete and her mother were very, very poor. But they had a spinning-wheel and spun the sheep's wool into yarn, and knitted thick stockings and clothes for the fishermen.

On a sunny summer day the little island looked like fairyland, with other fairy islands shining in the distance, but Grete, who would sit at the window with her spinning-wheel and look out upon the island, knew it in winter storms as well, and was afraid then of the great sea which had caused her father's death, and her own lameness. For poor little Grete could not run about and join in

games. Often, for days, she had to lie on her back, bearing a cruel pain that sometimes brought tears to her eyes.

One day when the sea roared, and the spray struck against the small window, dimming it so that it was impossible to see out of it, Grete, whose leg ached badly, was lying on the bed by the window.

For once the girl's busy fingers were idle, as she watched a big spider who was beginning to spin his web in the corner of the window. When she first noticed him he was running a line from one corner to the other, then he went back to the middle, and made a line fast to another corner, and after making a sort of wheel with a lot of spokes all joining in the middle, he started to work rounds. How clever he was! And he went round so fast that he made her feel quite giddy.

The spider somehow seemed to grow bigger and bigger, and his web covered more and more of the window, and was getting as white as snow. Slowly he seemed to change, until he was no longer a spider, but a trow, a queer little man with a face like a rosy, dried-up apple. And the trow nodded his head at her, and said in a tiny voice:

"Watch me, Grete, and you will know how to knit."

Yes, when she looked harder it was wool he was spinning, white and soft and fine; and the web—no, the knitting, of course, grew apace under his quick fingers. Why, it seemed quite easy to see how such beautiful patterns could be made. She was learning how to do

it fast, and the little trow turned every now and then, and smiled and nodded. The door opened. So did Grete's eyes. And now there was only a real spider, with an everyday sort of web, and, it was very odd, he was no longer at work, but was all tucked up into a ball against the ledge because he was too disgusted at the glittering little beads of spray that had forced a way through, and were hanging on his web, to go on with making it.

"Eh, mother," she cried, "you have frightened away the trow just as I was getting on so grandly with learning the fine knitting."

"What has the wee wifie been dreaming about?" said her mother. "Oh, I am tired! It has been a weary day's work." And she sat down, not noticing

he was helping her all the time, for surely never had wool been spun of such fineness and evenness before. Then, too, the spider's web was there; and she had only to look at the window, and the pattern seemed to stand out clearly again.

Before long, the neighbours all came crowding in to see the wonderful shawl that looked like lace. The fame of it even reached the ears of a great lady in Lerwick, who sent a messenger in a boat to say she wished him to bring it for her to see. Grete was sorry to part with her treasure, but her mother said it was a great honour for them, so it was borne away out of her sight across the sea to Lerwick.

Then, one fine day, Grete saw a white sail making for the voe. Soon a lady was sitting beside her, and asking her about



A SHETLAND WOMAN KNITTING A SHAWL BY THE WAYSIDE

This picture is from a photograph by Charles Reid, Wi-haw

in her bewilderment, that Grete did not answer. The little girl could not explain just then, and felt she wanted to think it all over before she forgot the wonderful pattern she had learned so strangely.

She dreamed about it all night, and could scarcely eat any breakfast next morning—she was so excited; and her mother helped her to pick out all the whitest wool from the bundles, so that she might start carding and spinning it at once. It would not spin fine enough to please her the first day; no, nor the second day, but she persevered until she was satisfied; and as her wheel went whirring round, she fancied she heard the trow's voice saying: "Try again, Grete. Try again." She thought

her work so kindly that she quite forgot to be frightened. And when the lady left she gave Grete a gold piece for the shawl, the first gold piece that had ever been seen on the island. Everybody wanted to learn how to get gold pieces, and Grete was delighted to teach them. So better days came, not only for Grete and her mother, not only for their own little island, but for all the islands near.

This is how the Shetlanders became so famous for their filmy lace-like shawls, and how it is that they do them without rules or patterns or counting of stitches, in a way that cannot be imitated by people who live in other parts of the world, for no trow ever came to teach them, as Grete's friend taught her long ago.

STORIES TOLD IN INDIA 3,000 YEARS AGO

These little stories were told to the boys and girls of India a thousand years before Jesus Christ was born, but they are still as interesting as when they were originally told to the children of long ago. They were first told in Sanskrit, the sacred language of the people of India.

THE TIGER AND THE TRAVELLER

A TIGER who was too old to go hunting for his food lay hidden in the jungle, crying to the passers-by to come and receive a handsome bangle for nothing. A covetous fellow, hearing the invitation, asked to see the bangle, and the tiger pushed one of his paws a little way through the grass and showed the stripe upon it. Thereupon the covetous man started to get it, but soon found himself up to his waist in a pool of mud.

"One moment," said the tiger, "and I will come and help you out."

And, going into the pool, he seized the man and made a hearty meal of him.

Covetousness often leads a man into trouble and disaster.

THE APE AND THE WEDGE

IN Behar, a great temple was being built, and a carpenter who had partly sawn through a huge beam of wood went away to dinner, leaving a wedge in the beam to prevent the two sawn parts from springing together. While the man was away, a party of monkeys came along, and one of these, thinking to appear clever before his companions, said:

"See me take the wedge out of this beam and give the carpenter more work to do!"

Then he jumped down into the opening in the beam, and tugged away at the wedge, until at last it came out, and at the same moment the sections of the beam sprang together and held the monkey fast until the carpenter returned.

Those who make trouble for others often fall into it themselves.

THE BRAHMAN AND THE GOAT

A BRAHMAN who lived in the forest had been to the town to buy a goat for sacrifice, and was returning with it on his shoulders, when he was seen by three rogues, who determined to obtain his goat.

They ran ahead of him and seated themselves at the foot of three different trees.

"Why do you carry that dog, master?" said the first, with well-feigned surprise.

The dog, it must be understood, is regarded as an unclean animal by the Brahmins.

"Dog!" was the indignant reply. "It is no dog at all, but a goat."

The Brahman came to the second rogue, who made the same remark. This time the Brahman took the goat from his shoulder, looked well at it, and, replacing it, proceeded on his journey.

But when still a third man said the goat was a dog, the Brahman doubted the evidence of his own eyes, threw down the animal, washed himself from the pollution of the supposed dog, and hurried off home. The three rogues then seized their prey, and cooked and ate it.

Be on your guard against rogues.

THE BRAHMAN AND THE POTS

A BRAHMAN went to rest in a potter's workshop, taking with him his staff, and a little dish containing some meal that had been given to him. As he lay upon the ground he began to meditate.

"If I sell this meal," he said, "I can buy some of these pots with the proceeds. Then I can sell those and make a profit, and with the money I can buy clothes to sell. And so, in time, I shall be worth many thousands of rupees. Then I shall buy a house and marry, and if my wives quarrel I shall take up my stick—like this, and punish them—thus."

As he thought these things he waved his staff, smashed his own dish, upset the meal in the dirt and dust, and broke many of the potter's vessels. So ended his wonderful castles built in the air.

Do not begin to count your chickens before they are hatched.

THE LION AND THE CAT

A WAY in the mountains of the north of India lived a lion, who was much annoyed by a small mouse that crept out while he was asleep and gnawed his mane. At last the lion went to the village and obtained a cat, promising to treat it royally if it would keep the mouse away.

This the cat did for a time, and the lion always gave his protector the best of food. But one day, when the mouse was very hungry, it came out and was killed by the cat. The lion soon found that there was no longer any mouse to annoy him, and he at once ceased supplying the cat with food, and the cat had to return to the village and live as poorly as it had done before.

The great are often selfish in their patronage of those who help them.

THE TALE OF JENNY MARTIN

JENNY MARTIN was the daughter of a poor woodcutter in the New Forest. One midsummer eve she was wandering about the forest, gathering flowers, when she saw a little white mouse sleeping on some moss beneath a great oak-tree.

"Oh, what a pretty white mouse!" said Jenny. "I will take it home."

She took the mouse in her hands, and it woke up and said:

"No, Jenny, do not take me to your father's cottage, or the cat may get at me and kill me. Leave me here. I am the Queen of the Mice, and I will reward you for your kindness."

"What will you give me, then?" said Jenny.

"Anything that you like to ask for," said the little white mouse. "You have only to come to this tree and tap three times, and I will grant you what you wish."

"Well, to begin with," said Jenny, "I should like my father's cottage to be changed into a pretty farmhouse."

"That I have done," said the mouse, "as you will see when you return home."

Jenny put the little white mouse back on the moss beneath the oak-tree, and ran home. In the place of the small, shabby cottage which she had left a few hours before, there stood a pretty farmhouse with an orchard full of large fruit-trees, a stable with three horses, and a cow-shed with thirty cows; and there were plenty of ducks and geese and chickens in the yard. Oh, how happy Jenny was, and how amazed was her father, the poor woodcutter, when he saw what had occurred!

A manly young farmer who had always been in love with Jenny came that evening to ask her to marry him. But Jenny was now proud and disdainful, and she dismissed her old sweetheart. She began to feel sorry that she had not asked the Queen of the Mice for something more than a farmhouse. So she went to the tree, tapped three times, and said:

"Little white mouse! Little white mouse! Jenny is tapping outside your house."

The little mouse peeped out and said:

"Well, what do you want now, Jenny?"

"The farm is too small and dirty," said the girl. "I should like a fine, handsomely furnished manor-house with a crowd of servants, a coffer full of gold, and a heap of rich, beautiful dresses."

"Return home," said the mouse, "and

there you will find all that you desire."

Jenny thus became a rich young lady, and as she was pretty, as well as rich, the squire's son came to woo her, and all the neighbours looked forward to their marriage. But no marriage took place, for Jenny grew proud and disdainful.

"No squire's son for me!" she said.

"I will get a castle and marry a lord."

So she went to the oak-tree and tapped three times, and said:

"Little white mouse! Little white mouse! Jenny is tapping outside your house."

"Dear me! Dear me! Whatever do you want now?"

"I want to be a lady," said Jenny, "and live in a great castle."

"Very well," said the little white mouse. "Go home, and you will find all that you desire."

So Jenny became a great lady, and a duke came and made a proposal of marriage to her. But Jenny was still proud and disdainful.

"A duchess?" she said. "I do not care to be a mere duchess; I must be a queen."

When she asked the little white mouse to change her castle into a royal palace, and make her a queen, the little white mouse said:

"Take care, Jenny, take care! You are getting very proud and disdainful. But go home, and, for the last time, you will there find all that you desire."

That very day the young and handsome King of England came to the New Forest to hunt.

As he was chasing the deer, he saw a magnificent palace gleaming between the trees. He rode up to look at it just as Jenny returned from her visit to the little white mouse. The woodcutter's daughter was now clad in rich, trailing robes of marvellous colours. She no longer appeared merely a pretty girl, but a very stately and beautiful lady. The king fell in love with her at first sight, and asked her to be his queen.

Jenny was at last pleased and contented with her wonderful good fortune. As she watched the preparation which was being made for her marriage with the king, she thought there was nothing left on earth for her to desire. Every day her royal lover came to her palace with splendid gifts; she had great ladies to wait upon her, and great lords to attend

THE TALE OF JENNY MARTIN

to her orders, and triumphal arches connected by festoons of foliage and flowers were erected all along the road from the New Forest to the City of Westminster, where the wedding was to take place. But as Jenny was about to enter into the gorgeous state carriage that was drawn up before her palace, she said to the king:

"I have forgotten something. Wait a few minutes while I take a walk in the forest."

The vast crowd of courtiers and knights and men-at-arms made made for her, and, pulling up her long robe, she ran to the

and more dutiful girl before you get one. Go home, and profit by the lesson that is awaiting you there."

Jenny went back through the forest in a state of strange fear, for, as she looked at her dress, she saw that it had changed from a queenly raiment into the poor, plain attire of a peasant girl. The palace had disappeared, and the king and the multitude of lords and great ladies and glittering soldiers were gone. Only her father's humble cottage now stood beneath the trees, and, strange to say, when the woodcutter came home late that evening to supper, he spoke as though



THE KING FELL IN LOVE WITH JENNY AT FIRST SIGHT, AND ASKED HER TO BE HIS QUEEN

oak-tree, and tapped impatiently three times, and said in a commanding voice:

"Little white mouse! Little white mouse! The Queen of England has come to your house."

"Well, Jenny Martin," said the little white mouse in a severe tone, "are you still not satisfied with all the wonderful things that I've done for you?"

"I want only one thing more," said Jenny. "When I am married I want my husband to give way to me in everything. Then I shall be ruler of England."

"You have no husband yet," said the little white mouse, in great anger, "and you will have to become a sweeter

nothing marvellous had ever occurred.

"Was it only a dream?" Jenny kept saying to herself when she found that none of the neighbours laughed at her.

No doubt the kindly little mouse made it all appear to be only a dream in order to lighten the punishment which Jenny had to bear. But Jenny learned the lesson. She became a sweet, contented, industrious girl, and the manly young farmer who had always loved her came and married her, and she lived more happily with him on that quiet little farm than she would ever have done on a high and glittering throne in a palace surrounded by courtiers.

THE PEASANT AND THE THREE ROBBERS

A PEASANT was one day travelling to market upon his donkey, taking with him a goat that followed behind, and was attached by a rope to the saddle of the ass. As the man went along the road, three cunning robbers saw him.

"Here comes a fine fish for our net," said one. "I am going to take his goat without the simple fellow knowing it."

"And I," said another of the thieves, "will do something cleverer than that. I will take his donkey with his permission, and he shall thank me sincerely for doing so."

"Ah!" said the third robber. "I will beat you both, for I will have the very coat off his back; and while he takes it off to give to me, he shall call me his friend and benefactor."

"Come along," said all three at once.

The first robber went up quietly behind the unsuspecting peasant, removed a bell that was tied to the goat's neck, and fastened it to the donkey's tail, so that it might continue to tinkle and the poor man might think his goat was still following. The thief then loosed the rope from the goat's neck and made off with the animal. After a time the peasant happened to look round, and was amazed to find that, though the bell still tinkled, the goat had disappeared. He ran hither and thither, but could see no trace of his goat. Just then the second robber approached, and, on being questioned, replied:

"I saw a man running in that direction with a goat, and I'll be bound to say it was yours. I will mind your donkey, if you like, while you give chase."

The peasant thanked the thief profusely and ran off, leaving his donkey with the rascal, who soon rode away upon its back.

The poor countryman, of course, found no trace of his goat, and soon returned, only to discover that his ass had disappeared too. He was very

angry with the men who had robbed him, and not less angry with himself for being duped.

"Well," said he, "the next man who tries to impose upon me will have to be very clever. I am on my guard now."

At this moment he heard a series of dismal groans, and, going to the spot whence they proceeded, he found a man weeping bitterly and sitting upon the ground near a well, in the greatest distress. It was the third robber.

"Why are you making this noise?" said the peasant. "Do you think you are the only man in trouble? I am on my way to market, and have just been robbed of both goat and donkey."

"Pooh!" replied the other. "That is nothing. I was carrying a casket of the richest jewels, and was resting by

this well, when by accident I let the treasure fall in, and there it lies at the bottom, quite out of reach."

The peasant looked into the well, but it was too dark to see anything at all.

"Why do you not dive in and recover your treasure?" said he.

"Alas!" replied the robber, groaning, "I cannot

swim or dive; but if only I could find someone who would dive in for me and get the casket, I would reward him with half its contents."

"Would you, indeed?" said the peasant. "Then I will dive in and get it for you."

The groaning man appeared delighted. "You shall certainly have half of the jewels," he said, whereupon the peasant thanked him as the benefactor who would more than replace the loss of the goat and the ass.

Taking off his coat, the peasant dived in, but, of course, there was no treasure in the well; and when, after hunting for a long time in the water, he came out greatly disappointed, to say that he was quite unable to find the treasure, he found that the third robber had made off with his coat.



THE FIRST ROBBER TIED THE BELL TO THE TAIL

THE PICTURESQUE ST. LAWRENCE

THE St. Lawrence River begins at the foot of Lake Ontario opposite the city of Kingston and flows in a northeasterly direction about seven hundred and fifty miles when its crystal waters merge with those of the gulf of the same name. With its tributaries, it drains over four hundred thousand square miles of country made up of fertile valleys and plains inhabited by a prosperous people, as well as desolate barrens and deep forests untrodden as yet by the foot of man.

Seldom less than two miles in width, it is two and one-half miles wide where it issues from Lake Ontario and with several expansions which are called lakes it becomes eighty miles in width where it ceases to be considered a river. The influence of the tide is felt over five hundred miles from the gulf, while it is navigable for sea-going vessels to Montreal, eighty miles farther inland. Rapids prevent navigation above this point, but by means of canals, boats pass from Montreal to Lake Ontario.

If inferior in breadth to the mighty Amazon, if lacking the length of the Mississippi, if missing the ancient castles of the Rhine, if wanting the lonely grandeur that overhangs the Congo, the majestic St. Lawrence has features as remarkable as any of these. It has its source in the largest body of fresh water upon the globe, and among all of the large rivers of the world, it is the only one whose volume is not sensibly affected by the elements. In rain or in sunshine, in spring floods or in summer droughts, the river seldom varies more than a foot in its rise and fall.

KINGSTON

Kingston, with its Military College, its massive gray stone forts, its martello towers, is the West Point of Canada. The city is beautifully situated at the foot of Lake Ontario and at the head of the River St. Lawrence. It is

called the Limestone City on account of the general use of this stone in both public and private buildings.

THE THOUSAND ISLANDS

Where the great Laurentian chain of mountains, running from east to west across Canada, swings southward to enter New York, it drops a link as it were and allows the last of the big lakes an outlet into the channel of the St. Lawrence, which moves sluggishly among the numerous islands, helping to form the most picturesque archipelago in the world. The actual number of islands in this Lake of the Thousand Isles is near two thousand, varying in size, shape and appearance from a small barren rock projecting from the surface of the river, to larger ones ornamented by summer residences varying in style of architecture from the modest cottage of the camper to the magnificent castle of the millionaire; and finally islands of large area covered with many farms.

Leaving Kingston, we wind in and out among these charming islands to the American town of Clayton, noted as a summer resort. Below this thriving town, island after island studding the quiet waters rises into view, the finger-tips of the great mountain range. On one of these larger isles is located the "Thousand Island Park" while a little below is the fashionable resort known as the "Saratoga of the St. Lawrence," Alexandria Bay.

From Clayton to Chippewa Bay the river with its clustered isles is like a fairyland. Hundreds of islands lie across the course of the steamer, all differing in size, coast, colouring and forming an intricacy of channels amid which only an experienced pilot can guide the steamer. Now we are entering a narrow pass between cliff-like banks covered with moss and trailing creepers, then we open into a lake-like expansion, then again among winding courses,

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through clustering islands and around rocky points. Everywhere art has combined with nature to enliven the scene. Islands are dotted with cottages in all sorts of picturesque surroundings, some perched on rocky bluffs showing among the trees, others snugly resting on low-lying islands or nestling in beautiful coves along the mainland. During the summer season the grand illumination of the islands takes place on Wednesday and Saturday evenings, when the entire region is transformed into a fairyland which must be seen to be appreciated.

The last of the Thousand Islands are called "The Three Sisters." Scarcely have we emerged from the still lingering images of the beautiful island scenery when the spires and roofs of the Canadian town of Brockville come in view. This town, named after General Brock, is built on an elevation which ascends by successive ridges from the St. Lawrence. A few miles below, Ogdensburg on the American side and Prescott on the other stand like sentinels long on duty.

THE RAPIDS

At Prescott we change from the lake steamers, which are too large to run the rapids, to river steamers with large observation decks. Soon after the last glimpse of Prescott fades in the distance we enter the Galops, the first of the series of rapids marking the downward flight of the waters. These are only a foretaste of what is to follow. We rapidly pass the picturesque Canadian towns of Cardinal and Iroquois. A little distance below Iroquois the Rapids du Plat swirl their dark green waters among a group of wooded islands. After shooting the du Plat, the steamer glides with increasing motion past a picturesque point named Woodlands and in and among bolder shores on the north side of Croyles Island into sight of the turbulent waters of the Long Sault with its snow-crested billows of raging waters. This, the greatest of the really remarkable rapids of the St. Lawrence, extends about nine miles down stream to Cornwall and is divided into channels by numerous beautifully wooded islands.

The "shooting of the rapids," as the descent by boat is called, is a most ex-

citing experience. Navigation of the Long Sault requires exceptional nerve and precision in piloting as well as extra power to control the helm; hence the rudder is provided with a tiller besides the regular apparatus while four men are kept at the wheel to ensure safe steering, and as a result of such precautions accidents are unknown.

The St. Lawrence expands below Cornwall, forming the beautiful Lake St. Francis, twenty-eight miles in length. Below the lake we enter the Coteau Rapids. These rapids, about two miles long, are very beautiful and have a very swift current. About seven miles further down we sweep past a small island where the trees almost dip into the hurrying stream, and rounding a sharp curve we enter the Cedar Rapids. On the left is a beautifully wooded island and on the right is Hell's Hole, the greatest commotion in the river from Kingston to the gulf. These rapids are very turbulent and the passage is very exciting. Scarcely has the boat left the Cedar Rapids before she enters the Split Rock Rapids with many submerged boulders guarding the entry. One cannot restrain a shudder as the ship approaches these threatening rocks, but the skilful hand of the helmsman turns the boat aside and it passes by unharmed.

A short distance below are the Cascades, the last of this series of rapids, conspicuous by white-crested waves which mount tumultuously from the dark green waters in a choppy angry way. This group of four rapids following one another in close succession extends in length about twelve miles.

Below the Cascades the river expands into Lake St. Louis. Its shores are among the beauty spots of the St. Lawrence. After issuing from the lake we pass the town of Lachine, nine miles from Montreal. Just below the town the steamer glides into mid-stream, that moves with increasing speed, indicative of the coming rapids which now appear in full view. And soon we enter the last of the St. Lawrence rapids, the Lachine. A moment more and we have completed the descent and ride in tranquillity on the quiet waters below. Passing the

THE MARVELLOUS RIVER



No part of the St. Lawrence is more beautiful than the section including the Thousand Isles. Some of the Islands, as you see, are only ledges of rock standing above the water, others are very large and on them are built the cottages of the summer residents. Some of these are really palaces.



In the text you are told of the excitement of running the rapids of the great river. Here is just the edge of a boat going down the Long Sault Rapids, one of the most dangerous of the whole series. The pilots are so skilful that an accident is almost unknown.

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beautifully wooded shores of Nun's Island, we see the famous Victoria Jubilee Bridge.

Sweeping beneath the great bridge, we come in full view of the City of Montreal with its teeming harbours, beautiful buildings of massive stone, stately churches and cathedrals, noted colleges, famous parks, and most of all, its royal mountain lifting its imperial head seven hundred and forty feet above the din and noise of the street.

DOWN THE ST. LAWRENCE

Leaving Victoria Pier we first pass Longueil, a village in the south bank. The first town of note is Sorel, at the mouth of the Richelieu River and forty-five miles from Montreal. It stands on the site of the fort built by de Tracy in 1665 and was for many years the summer residence of the governors of Canada. About five miles further down, the river expands into a vast sheet of water, twenty-five miles long and nine miles broad, known as Lake St. Peter.

Passing the mouth of the St. Francis River, we arrive at the city of Three Rivers, midway between Montreal and Quebec. Continuing the journey, we pass St. Anne and the Jacques Cartier River, after which the land on the river banks begins to rise, presenting a bold and picturesque appearance as we near Quebec. The mouth of the Chaudiere on the south next attracts our attention. Before us is the grand gateway of the St. Lawrence, and on our left crowning Cape Diamond, is the famous citadel of Quebec. This lofty fortress, which covers an enclosed area of forty acres, three hundred and sixty-five feet above the river, was built from plans approved by the Duke of Wellington. Since the withdrawal of British troops in 1871, it has been garrisoned by Canadian soldiers.

At the base of his huge bulwark forming the "Gibraltar of America" lies the "Lower Town" with narrow streets, weather-stained dwellings, warehouses, bustle and confusion. We ascend a narrow steep street to the "Upper Town" noted for its historic battleground. Quaint, curious old Quebec, the most picturesque and interesting

city in America, whose winding streets and frowning battlements are pervaded with the atmosphere of departed centuries. Quebec seems to have been specially formed by Nature for the important part assigned to her in the drama of this continent, for from her commanding eminence, she holds the position of guardian and sentry of Canada.

Leaving Quebec, the steamer passes the Isle of Orleans on the left, and near its eastern end Mt. St. Anne raises its head twenty-seven hundred feet above the river, and a short distance below the end of the island Mount Tourmente, nearly two thousand feet in height, with its lonely lighthouse looms against the sky. We pass Capes Burnt and Rouge and a short distance further on is Cape Grebaune, which towers twenty-two hundred feet above the steamer. A few miles eastward is Murray Bay, the favourite watering place of the Lower St. Lawrence. The river here is fifteen miles broad and its waters are as salt as the ocean itself. Murray Bay, with the grand old Laurentian mountains behind and the river in front furnishes a variety of scenery not often found in combination.

Some miles below Murray Bay the Pilgrims are seen. They consist of a remarkable group of rocks which are visible at a great distance; "the mirage" seems to dwell about them. We now reach Tadousac, at the mouth of the Saguenay River. This town was the first settlement made by the French on the St. Lawrence and was their principal fur-trading post. From this point the northern shore is rough and broken while along the southern there is an almost continuous chain of fishermen's hamlets, farm-houses, villages marked by windmills, forests and green meadows, with here and there a silvery stream winding sluggishly down to the river. The St. Lawrence grows wider and wider until it has a width of eighty miles, when it is lost in the gulf of the same name.

The St. Lawrence in its majestic course from lake to ocean offers to the traveller more of beauty and romance than any other river of the world.

CANADIAN FORESTS AND THEIR WEALTH

CANADA is a land of forest. At its discovery, one dense continuous forest covered it from the Atlantic to Lake Winnipeg and north of the prairies to the Rocky Mountains, while the British Columbia forests stretched southward and westward to the Pacific. The early pioneers of Canada had to clear the land of trees before it was available for agriculture. All the settled parts of Ontario, Quebec and the maritime provinces have been hewn from the forests.

THE SUB-ARCTIC FORESTS

The sub-arctic forest is a continuous tract of woodland extending across the continent as far as the Rocky Mountains. Its northern limit starts in Labrador at about fifty-six degrees north latitude and passes near Churchill on the west coast of Hudson Bay and then in a northwest direction to the mouth of the Mackenzie River. To the northeast of this line is the country known as the Barren Lands. The sub-arctic forest belt varies in width from two hundred to three hundred miles and this width across the continent would give it an area of nearly a million square miles.

TREES OF THE NORTH-LAND

Scrub pine, black and white spruce, tamarack and poplar are the five characteristic trees in this region and are the last to disappear on the barren grounds at the north. They are not dwarfed but retain their size and importance to the last, only withdrawing from the colder and wetter ground and occupying dryer and warmer places at the extreme northern limits. The scrub pine along the northern shore of Lake Superior increases in size as we go westward and in Alberta attains a height of a hundred feet and a diameter of twenty-four inches. The poplar of small size in the East becomes in the West an important tree. The forests of the Peace River valley are composed of spruce and poplar. The latter touches the edge of the prairies, making the little bits of woodland on the western prairies. The balsam poplar and

the white spruce are the important trees of the Mackenzie valley.

TREES OF THE PROVINCES

South of the sub-arctic forest appear the forests characteristic of the different provinces. British Columbia has a forest growth peculiarly its own. In the wet coast region the Douglas fir attains a height of three hundred feet and a diameter of from ten to twelve feet, and the western cedar grows even larger. Ninety-five per cent of the Rocky Mountain forest is made up of five species, Engelmann's and white spruce, black pine, Douglas and balsam fir. East of the mountains is the belt of poplar forest running from Edmonton to Winnipeg, a distance of nine hundred miles with a breadth of fifty miles, a connecting link with the forests of Ontario.

In northern Ontario and Quebec, the characteristic trees are, maple, beech, birch, elm, ash, oak, hickory, pine, cedar, spruce and hemlock. The forest growth of southern Ontario is different and the predominant trees are the oak, hickory, chestnut, buttonwood and tulip. In the maritime provinces the same trees as in Quebec are found, but on the sea level of the Atlantic and the Bay of Fundy, the cooler climate brings back the spruces and firs. The maple, the national emblem of Canada, is widely distributed from the Atlantic to Manitoba in four species, striped, mountain, sugar and red. Two species, the broad-leaved and vine, are found in British Columbia. Only the characteristic trees have been noted, as in the Canadian forests more than a hundred varieties are found.

THE EXTENT OF CANADIAN FORESTS

Since the settlement of the French in Canada, vast areas have been cleared by man or destroyed by fire. Yet Canada to-day is the richest country in the world in wood resources and forest areas. The extent of Canadian forests is a matter of conjecture as only a small per cent has been surveyed. A conservative estimate made by a prominent Canadian forester is 840,000 square

miles, an area twice the size of France and Germany. To this must be added the sub-arctic forest belt, which would bring the area to over 1,500,000 square miles. The estimate in board measure of Canadian timber has been placed at two thousand billion feet. Canada has one hundred and twenty acres of forest land for every man, woman and child of her population. Norway stands second, with an average of nine acres.

THE EXTENT OF WOOD PULP

The increasing use of wood pulp for the manufacture of paper gives great importance to Canada's vast areas of spruce and poplar. The sub-arctic forest belt is one vast area of pulp wood. It has been stated that if the United States did not cut another stick of pulp wood for two hundred years and the Canadian trees should stop growing and remain in their present condition, there would be enough pulp wood available to keep the two countries going for more than two hundred years. But Europe is now calling upon Canada for wood pulp and every year the demand increases, as more and more paper is used.

DISTRIBUTION OF TIMBER

The maritime provinces possess a large area of spruce. Pine is about exhausted but there is still considerable hardwood. Quebec has extensive forest areas, as thousands of miles of the finest timber have not been touched. The province possesses considerable valuable white pine. In the north of Ontario there is a large tract of forests. The Georgian Bay district contains the largest area of white pine in the world and sufficient to supply the trade for a number of years. Ontario has considerable hardwood and an inestimable supply of spruce. In Manitoba, Alberta, and Saskatchewan there is an abundant supply of poplar, pine, spruce, tamarack and some fir. Lumbering is an important industry in the two latter provinces.

British Columbia on the Pacific Coast has the largest area of salable timber in the world. The province has an area of 383,000 square miles and three-fourths of it is still covered with valuable timber. The lumber mills of the province

could continue their cutting at the rate of three-fourths of a billion feet a year for twelve hundred years before the supply would be exhausted. A prominent lumberman has estimated the value of the standing timber at over nine billion dollars.

NEED FOR PROTECTION

Canada's forest resources are immense but they have their limitations. Important as are the riches of Canada in lumber and forest products they cannot long be maintained without care in resisting both forest fires, which yearly sweep over large tracts of country, and the wilful waste by lumbermen. It must not be overlooked that the importance of forests does not consist merely in the immediate output of lumber, ties, timber and pulp wood, but in the regulation of water flow, prevention of soil waste and influence upon the climate.

FIRE PATROL

The Canadians not only realise that they have a very valuable asset in their forests but also that care should be exercised in protecting them. Along with the world at large questions of tree planting and forest preservation are receiving great attention. A few years ago, Ontario began a system of fire patrol to protect the forests against fires. It will not be long before fire patrol will be from the Atlantic to the Pacific.

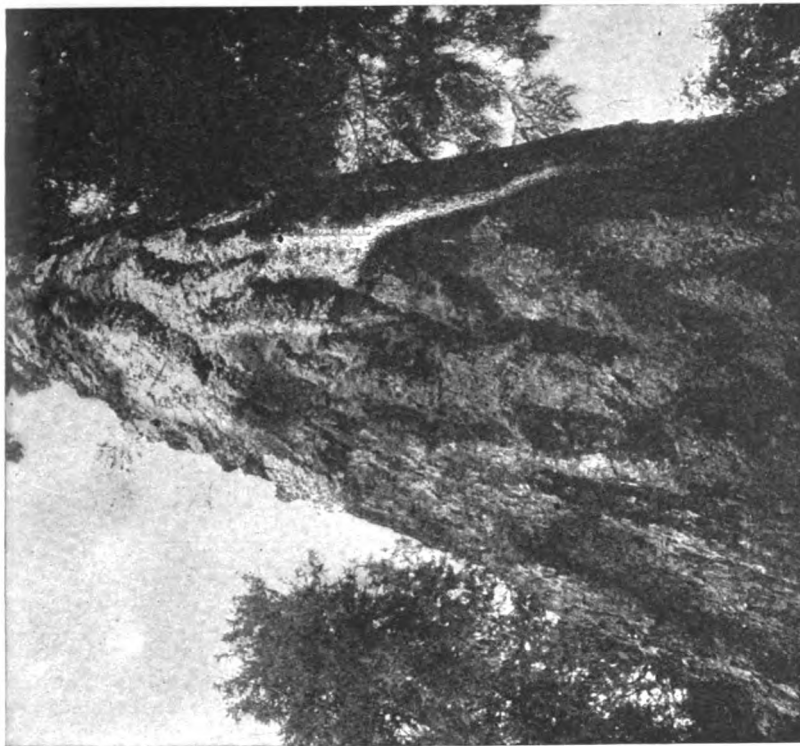
GOVERNMENTAL SUPERVISION

The Dominion as well as many of the provinces have set aside large areas as forest reserves. It is to be hoped that this wise policy will be greatly extended. Foresters say that the selling of crown forest lands should be abolished, and that the license system, or the selling of the right to cut timber and pulp wood from crown lands, should be universally adopted.

The forests of the Dominion though one of its chief assets are not inexhaustible. The Canadians have realised this before their vast forest areas are destroyed. They have learned from the costly experience of other nations which did not take steps to protect their forests until they were about exhausted.



This picture may help you to believe some of the stories you have heard about the trees of Canada. This is a cedar now standing in Vancouver, British Columbia. From the size of the man you can see how large the tree must be. Big trees are found in other places besides California.



This queer picture does not represent a volcano, but shows how the top of a tree may look to a camera. The photographer turned his camera upward in order to show the trunk of a great Canadian fir and this is the result he got.

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WHAT THIS STORY TELLS US

THIS extract is from that charming book, "The Marble Faun," by Nathaniel Hawthorne, who was born at Salem in 1804 and died in Plymouth, N. H., in 1864. His father died when he was only four years old and the boy led a lonely life, spending much time in long walks. He was graduated at Bowdoin College in 1824, and while there made the acquaintance of Henry W. Longfellow and Franklin Pierce, afterwards President of the United States. Though determined to write, he was forced by poverty to accept positions which were very unpleasant to him, but performed his duties faithfully, writing at night. His most important work was "The Scarlet Letter." In 1853 President Pierce appointed him U. S. Consul at Liverpool; he remained in Europe seven years, and while there wrote this book, which you must be sure to read. We cannot give the names of all his other books here, but you remember "Twice Told Tales" of course.

THE MARBLE FAUN

CONTINUED FROM PAGE 5363.

DONATELLO, while it was still a doubtful question betwixt afternoon and morning, set forth to keep the appointment which Miriam had carelessly tendered him in the grounds of the Villa Borghese.

The entrance to these grounds (as all my readers know, for everybody nowadays has been in Rome) is just outside of the Porta del Popolo. Passing beneath that not very impressive specimen of Michael Angelo's architecture, a minute's walk will transport the visitor from the small, uneasy lava stones of the Roman pavement into broad, gravelled carriage-drives, whence a little farther stroll brings him to the soft turf of a beautiful seclusion. A seclusion, but seldom a solitude; for priest, noble, and populace, stranger and native, all who breathe Roman air, find free admission and come hither to taste the languid enjoyment of the daydream that they call life.

But Donatello's enjoyment was of a livelier kind. He soon began to draw long and delightful breaths among those shadowy walks. Judging by the pleasure which the sylvan character of the scene excited in him, it might be no merely fanciful theory to set him down as the kinsman, not far remote, of that wild, sweet, playful, rustic creature, to whose marble image

he bore so striking a resemblance. How mirthful a discovery would it be (and yet with a touch of pathos in it), if the breeze which sported fondly with his clustering locks were to waft them suddenly aside, and show a pair of leaf-shaped, furry ears!

He drank in the natural influences of the scene, and was intoxicated as by an exhilarating wine. He ran races with himself along the gleam and shadow of the wood-paths. He eapt up to catch the overhanging bough of an ilex, and swinging himself by it, alighted far onward, as if he had flown thither through the air. Then in order to bring himself closer to the genial earth, with which his kindred instincts linked him so strongly, he threw himself at full length on the turf, and pressed down his lips, kissing the violets and daisies, which kissed him back again, though shyly, in their maiden fashion.

While he lay there, it was pleasant to see how the green and blue lizards, who had been basking on some rock or on a fallen pillar that absorbed the warmth of the sun, scrupled not to scramble over him with their small feet; and how the birds alighted on the nearest twigs and sang their little roundelays unbroken by any chirrup of alarm.

At last, deeming it full time for

Miriam to keep her tryst, he climbed to the tiptop of the tallest tree, and thence looked about him, swaying to and fro in the gentle breeze, which was like the respiration of that great leafy, living thing.

Donatello saw beneath him the whole circuit of the enchanted ground; the statues and columns pointing upward from among the shrubbery, the fountains flashing in the sunlight, the paths winding hither and thither, and continually finding out some nook of new and ancient pleasantness. He saw the villa, too, with its marble front incrustated all over with bas-reliefs, and statues in its many niches. It was as beautiful as a fairy palace, and seemed an abode in which the lord and lady of this fair domain might fitly dwell, and come forth each morning to enjoy as sweet a life as their happiest dreams of the past night could have depicted. All this he saw, but his first glance had taken in too wide a sweep. But it was not till his eyes fell almost directly beneath him, that Donatello beheld Miriam just turning into the path that led across the roots of his very tree. He descended among the foliage, waiting for her to come close to the trunk, and then suddenly dropped from an impending bough, and alighted at her side. It was as if the swaying of the branches had let a ray of sunlight through. The same ray likewise glimmered among the gloomy meditations that encompassed Miriam, and lit up the pale, dark beauty of her face, while it responded pleasantly to Donatello's glance.

"I hardly know," said she, smiling, "whether you have sprouted out of the earth, or fallen from the clouds. In either case, you are welcome."

And they walked onward together.

Miriam's sadder mood, it might be, had at first an effect on Donatello's spirits. It checked the joyous ebullition into which they would otherwise have effervesced when he found himself in her society, not, as heretofore, in the old gloom of Rome, but under that bright soft sky and in those Arcadian woods. He was silent for awhile; it being, indeed, seldom Donatello's im-

pulse to express himself copiously in words.

By and by, his own mood seemed to brighten Miriam's and was reflected back upon himself. He began inevitably, as it were, to dance along the wood-path, flinging himself into attitudes of strange comic grace. Often, too, he ran a little way in advance of his companion, and then stood to watch her as she approached along the shadowy and sun-flecked path. He gave Miriam the idea of a being not precisely man, nor yet a child, but, in a high and beautiful sense, an animal — a creature in a state of development less than what mankind has attained, yet the more perfect within itself for that very deficiency.

"What are you, my friend?" she exclaimed, always keeping in mind his singular resemblance to the Faun of the Capitol. "If you are, in good truth, that wild and pleasant creature whose face you wear, pray make me known to your kindred. They will be found hereabouts, if anywhere. Knock at the rough rind of this ilex-tree, and summon forth the Dryad! Ask the water-nymph to rise dripping from yonder fountain, and exchange a moist pressure of the hand with me! Do not fear that I shall shrink, even if one of your rough cousins, a hairy Satyr, should come capering on his goat-legs out of the haunts of far antiquity, and propose to dance with me among these lawns! And will not Bacchus — with whom you consorted so familiarly of old, and who loved you so well — will he not meet us here, and squeeze rich grapes into his cup for you and me?"

Donatello smiled; he laughed heartily, indeed, in sympathy with the mirth that gleamed out of Miriam's deep dark eyes. But he did not seem quite to understand her mirthful talk, nor to be disposed to explain what kind of creature he was, or to inquire with what divine or poetic kindred his companion feigned to link him. He appeared only to know that Miriam was beautiful, and that she smiled graciously upon him; that the present moment was very sweet, and himself most happy with the sunshine, the sylvan scenery,

and woman's kindly charm, which it enclosed within its small circumference. It was delightful to see the trust which he reposed in Miriam, and his pure joy in her propinquity; he asked nothing, sought nothing, save to be near the beloved object, and brimmed over with ecstasy at that simple boon.

"Donatello," said Miriam, looking at him thoughtfully, but amused, yet not without a shade of sorrow, "you seem very happy; what makes you so?"

"Because I love you!" answered Donatello.

He made this momentous confession as if it were the most natural thing in the world; and, on her part — such was the contagion of his simplicity — Miriam heard it without anger or disturbance, though with no responding emotion.

"Why should you love me, foolish boy?" said she. "We have no points of sympathy at all. There are not two creatures more unlike, in this wide world, than you and I!"

"You are yourself, and I am Donatello," replied he. "Therefore I love you! There needs no other reason."

Certainly, there was no better or more explicable reason. It might have been imagined that Donatello's unsophisticated heart would be more readily attracted to a feminine nature of clear simplicity like his own, than to one already turbid with grief and wrong, as Miriam's seemed to be. Perhaps, on the other hand, his character needed the dark element, which it found in her. The force and energy of will, that sometimes flashed through her eyes, may have taken him captive; or, not improbably, the varying lights and shadows of her temper, now so mirthful, and anon so sad with mysterious gloom, had bewitched the youth.

Miriam could not think seriously of the avowal that had passed. He held out his love so freely, in his open palm, that she felt it could be nothing but a toy, which she might play with for an instant, and give back again. It could not, she decided for herself, be other than an innocent pastime, if they two — sure to be separated by their different paths in life, to-morrow — were to gather up some of the little pleasures

that chanced to grow about their feet, like the violets and wood-anemones, to-day. Yet an impulse of rectitude impelled Miriam to give him what she still held to be a needless warning against an imaginary peril.

"If you were wiser, Donatello, you would think me a dangerous person," said she. "If you follow my footsteps, they will lead you to no good. You ought to be afraid of me."

"I would as soon think of fearing the air we breathe," he replied.

"And well you may, for it is full of malaria," said Miriam. "Those who come too near me are in danger of great mischiefs, I do assure you. Take warning therefore. It is a sad fatality that has brought you from your home among the Apennines — some rusty old castle, I suppose, with a village at its foot, and an Arcadian environment of vineyards, fig-trees, and olive orchards — a sad mischance, I say, that has transported you to my side. You have had a happy life hitherto — have you not, Donatello?"

"Oh, yes," answered the young man; and, though not of a retrospective turn, he made the best effort he could to send his mind back into the past. "I remember thinking it happiness to dance with the contadinas at a village feast; to taste the new, sweet wine at vintage-time, and the old, ripened wine, which our podere is famous for in the cold winter evenings; and to devour great, luscious figs, and apricots, peaches, cherries, and melons. I was often happy in the woods, too, with hounds and horses, and very happy in watching all sorts of creatures and birds that haunt the leafy solitudes. But never half so happy as now!"

"In these delightful groves?" she asked.

"Here, and with you," answered Donatello. "Just as we are now."

"What a fulness of content in him! How silly, and how delightful!" said Miriam to herself. Then addressing him again: "But, Donatello, how long will this happiness last?"

"How long!" he exclaimed; for it perplexed him even more to think of the future than to remember the past.

"Why should it have any end? How long! For ever! for ever! for ever!"

"The child! the simpleton!" said Miriam, with sudden laughter, and checking it as suddenly. "But is he a simpleton indeed? Here, in those few natural words, he has expressed that deep sense, that profound conviction of its own immortality, which genuine love never fails to bring. He perplexes me, — yes, and bewitches me, — wild, gentle, beautiful creature that he is! It is like playing with a young greyhound!"

Her eyes filled with tears, at the same time that a smile shone out of them. Then first she became sensible of a delight and grief at once in feeling this zephyr of a new affection, with its untainted freshness, blow over her weary, stifled heart, which had no right to be revived by it. The very exquisiteness of the enjoyment made her know that it ought to be a forbidden one.

"Donatello," she hastily exclaimed, "for your own sake, leave me! It is not such a happy thing as you imagine it, to wander in these woods with me, a girl from another land, burdened with a doom that she tells to none. I might make you dread me, — perhaps hate me, — if I chose; and I must choose, if I find you loving me too well!"

"I fear nothing!" said Donatello, looking into her unfathomable eyes with perfect trust. "I love always!"

"I speak in vain," thought Miriam within herself. "Well, then, for this one hour, let me be such as he imagines me. To-morrow will be time enough to come back to my reality."

And immediately, she brightened up, as if an inward flame, heretofore stifled, were now permitted to fill her with its happy lustre, glowing through her cheeks and dancing in her eye-beams.

Donatello, brisk and cheerful as he seemed before, showed a sensibility to Miriam's gladdened mood by breaking into still wilder and ever-varying activity. He frisked around her, bubbling over with joy, which clothed itself in words that had little individual meaning, and in snatches of song that seemed as natural as bird-notes. They then both laughed together, and heard their own

laughter returning in the echoes, and laughed again at the response; so that the ancient and solemn grove became full of merriment for those two blithe spirits. A bird happening to sing cheerily, Donatello gave a peculiar call, and the little feathered creature came fluttering about his head, as if it had known him through many summers.

"How close he stands to nature!" said Miriam, observing this pleasant familiarity between her companion and the bird. "He shall make me as natural as himself for this one hour."

As they strayed through that sweet wilderness, she felt more and more the influence of his elastic temperament. Miriam was an impressible and impulsive creature, as unlike herself, in different moods, as if a melancholy maiden and a glad one were both bound within the girdle about her waist and kept in magic thralldom by the brooch that clasped it.

So the shadowy Miriam almost out-did Donatello on his own ground. They ran races with each other, side by side, with shouts and laughter; they pelted one another with early flowers, and gathering them up again, twined them with green leaves into garlands for both their heads. They played together like children, or creatures of immortal youth. So much had they flung aside the sombre habitudes of daily life, that they seemed born to be sportive for ever, and endowed with eternal mirthfulness instead of any deeper joy.

"Hark!" cried Donatello, stopping short, as he was about to bind Miriam's fair hands with flowers, and lead her along in triumph, "there is music somewhere in the grove!"

"It is your kinsman Pan, most likely," said Miriam, "playing on his pipe. Let us go seek him, and make him puff out his rough cheeks and pipe his merriest air! Come; the strain of music will guide us onward like a gaily coloured thread of silk."

"Or like a chain of flowers," responded Donatello, drawing her along by that which he had twined. "This way! — Come!"

As the music came fresher on their ears, they danced to its cadence, ex-

temporising new steps and attitudes. Each varying movement had a grace which might have been worth putting into marble, for the long delight of days to come, but vanished with the movement that gave it birth, and was effaced from memory by another. In Miriam's motion, freely as she flung herself into the frolic of the hour, there was still an artful beauty; in Donatello's, there was a charm of indescribable grotesqueness, hand in hand with grace; sweet, bewitching, most provocative of laughter, and yet akin to pathos, so deeply did it touch the heart. This was the ultimate peculiarity, the final touch, distinguishing between the sylvan creature and the beautiful companion at his side. Setting apart only this, Miriam resembled a Nymph, as much as Donatello did a Faun.

There were flitting moments, indeed, when she played the sylvan character as perfectly as he. Catching glimpses of her, then, you would have fancied that an oak had sundered its rough bark to let her dance freely forth, endowed with the same spirit in her human form as that which rustles in the leaves, or that she had emerged through the pebbly bottom of a fountain, a water-nymph to play and sparkle in the sunshine, flinging a quivering light around her, and suddenly disappearing in a shower of rainbow drops.

As the fountain sometimes subsides into its basin, so in Miriam there were symptoms that the frolic of her spirits would at last tire itself out.

"Ah! Donatello," cried she, laughing, as she stopped to take breath; "you have an unfair advantage over me! I am no true creature of the woods; while you are a real Faun, I do believe. When your curls shook just now, methought I had a peep at the pointed ears."

Donatello snapped his fingers above his head, as fauns and satyrs taught us first to do, and seemed to radiate jollity out of his whole nimble person. Nevertheless, there was a kind of dim apprehension in his face, as if he dreaded that a moment's pause might break the spell, and snatch away the sportive companion whom he had waited for through so many dreary months.

"Dance! dance!" cried he joyously. "If we take breath, we shall be as we were yesterday. There, now, is the music, just beyond this clump of trees. Dance, Miriam, dance!"

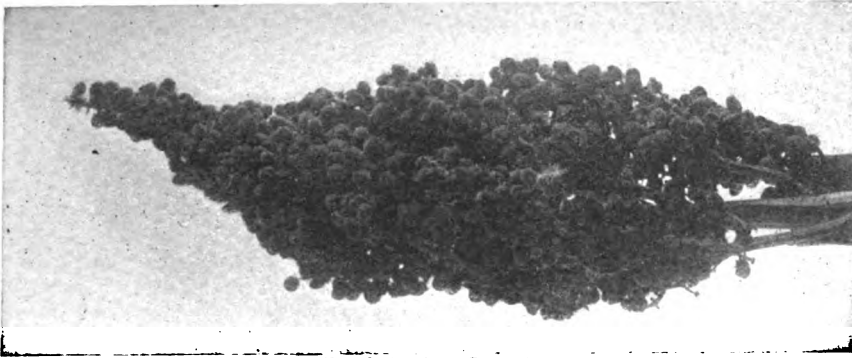
They had now reached an open, grassy glade (of which there are many in that artfully constructed wilderness) set round with stone seats, on which the aged moss had kindly essayed to spread itself instead of cushions. On one of the stone benches sat the musicians, whose strains had enticed our wild couple thitherward. They proved to be a vagrant band, such as Rome, and all Italy, abounds with. It chanced to be a feast-day; and, instead of playing in the sun-scorched piazzas of the city, or beneath the windows of some unresponsive palace, they had bethought themselves to try the echoes of these woods.

As Miriam and Donatello emerged from among the trees the musicians scraped, tinkled, or blew, each according to his various kind of instrument, more inspiringly than ever.

A dark-cheeked little girl, with bright black eyes, stood by, shaking a tambourine set round with tingling bells, and thumping it on its parchment head. Without interrupting his brisk, though measured movement, Donatello snatched away this unmelodious contrivance, and flourishing it above his head, produced music of indescribable potency, still dancing with frisky step, and striking the tambourine, and ringing its little bells, all in one jovial act.

It might be that there was magic in the sound, or contagion, at least, in the spirit which had got possession of Miriam and himself, for very soon a number of festal people were drawn to the spot, and struck into the dance, singly, or in pairs, as if they were all gone mad with jollity.

Here, as it seemed, had the Golden Age come back again within the precincts of this sunny glade, thawing mankind out of their cold formalities, releasing them from irksome restraint, mingling them together in such childlike gayety that new flowers (of which the old bosom of the earth is full) sprang up beneath their footsteps.



The fruit of the Sumach.

AMERICAN TREES IN WINTER

CONTINUED FROM PAGE 5418.

How many of us can name the trees we see in winter? Yet, if we have ever walked through leafless groves with a skilled woodcutter, we have found that he can recognise the different trees very readily. When the trees are thus crowded together he identifies them chiefly by the bark — the smooth gray bark of the beech, the deeply furrowed bark of chestnut or walnut, the silvery, or golden, or rich brown coat of the birches, and so on.

Even we can see the difference between the pale, smooth skin-like covering of a beech-bole, which always tempts us to mar it with our initials, cut deep with a penknife, and the chalky-white covering of the "silver-vested" birches, that curls back in thin sheets. If we should tear off a strip of this, we should find that it would come away like a ring, leaving a belt of fawn-coloured under-bark encircling the trunk. How different both of these are from the ragged fibrous bark of the cedar, from which shreds are continually fluttering in the wind, or from the rough, somewhat scaly bark of the white pine, and the furrowed bark of the chestnut, which reminds us of lattice-work.

When we take our winter walks, it will be amusing to see how many of the commoner trees we already can tell by sight. The evergreens, of

course, will be the easiest to know. Nearly every park has plenty of them; but we can find several others growing wild in the fields and woods.

THE CEDAR

The cedar is perhaps the most common. There are several species known by this name, but they look very much alike, and together they cover this continent from ocean to ocean. We often see young trees, with tightly crowded foliage, and shaped exactly like a paint-brush, standing in rows by fences, velvety-green where the sunshine rests upon them, but almost black in the shadows. The fragrant little leaves, like scales, are wrapped around the twigs, and on some trees, bluish berries nestle among them. These bring the pretty, gray-brown cedar-birds, with their wing-feathers tipped with something precisely like drops of scarlet sealing-wax. They whisper quietly to each other as we pass through the cedars, then return to their feasting on the resinous berries.

Other birds come to the cedars for shelter, and they carry off streamers of the fibrous red-brown bark to weave into their nests. Long, long ago the Indian, too, learned how to weave the bark into ropes and sandals, although it is short and brittle. When the trees grow in groups, the trunks grow straight and tapering like masts, but

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when in fields or on the tops of sand-dunes, where the wind blows them roughly, the cedar tree becomes broad and low, and often one-sided — a tree that painters love to draw.

Its rosy wood is very fragrant, and campers delight to throw it on a bonfire so as to smell the odorous smoke. This fragrance seems to be disagreeable to moths, however, so that chests for woollen clothing are made from cedar wood. It is also the best material for cigar boxes. It is so soft and easily cut with a penknife, that nearly all of our pencils are made from the odorous cedar.

THE YEW TREE

We have all heard the story of the English yew, and how it was bent into bows that made English archers famous. It is interesting to discover that on the Pacific coast there is another yew which looks very much like that of the Old World. It has the same flattened spray with rigid leaves, and the tapering cedar-like trunk, which reminds one of a group of slender columns pressed closely together and covered with a purplish, shaggy, fibrous bark. Its wood is tough and elastic and the Indians have always used it for bows and paddles just as the Europeans did. If we find a yew tree, however, we must be careful not to chew the foliage, or to eat the seeds nestling in the bottom of a scarlet, fleshy cup, for both are likely to poison us.

THE WHITE PINE

There are many kinds of pines, most of them valuable, which grow in America. We generally think of them as furnishing tar, pitch and turpentine (called naval stores), or lumber for many purposes. In fact, this was the reason why the magnificent white pines of New England were considered to be so important that Maine is called the Pine Tree State; and explains why she placed a figure of a pine on her colonial shillings and flag; and finally included a pine tree in her state coat of arms.

But only where the white pine grows in an open space, do we see it spreading in the broad pyramid-like form that we think of when we say "shaped like a pine tree." In forests it grows tall and

straight, the lower limbs being killed by shade. It may even reach a height of two hundred feet; and these giant, tapering trunks, of firm, compact wood and straight grain, were sought as masts for sailing vessels as well as for many other purposes. Nowadays, so many white pines have been cut down that the lumber is rather scarce, and pines with harder wood, or inferior woods, are used in their place.

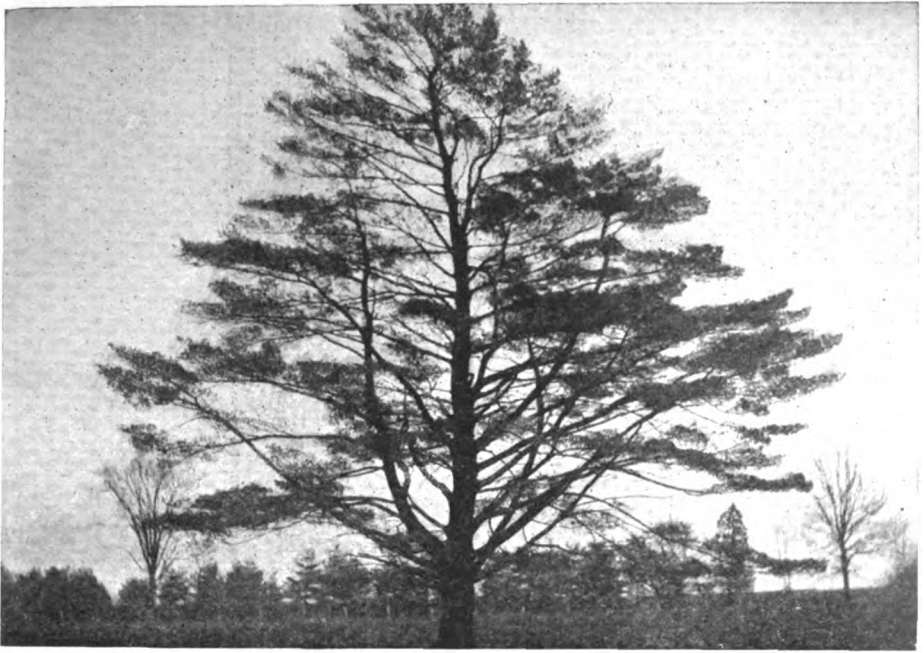
There are five "needles," as the leaves are called, growing together in each little case or sheath. This is a point to be remembered. The cones are long and slender, with thin, narrow, shingle-like scales, that readily open. These scales (in some pines they are thick and stiff and knobbed) in all pine-cones, serve as little roofs to shelter a pair of winged seeds fitted into hollows at their bases. When the seeds are ripe and the weather is warm and dry, these pent-house roofs are raised, and allow the seeds to fall out and twirl to the ground. But as soon as the weather becomes damp, the scales slowly shut down, and overlapping, or fitting close, keep the seeds from becoming wet. The scales act also as a protection or armour, to defend the seeds from the attack of animals. But they are not proof against the clever red squirrel, nor the attacks of certain birds called "cross-bills," that have bills with crossed halves, which look very queer, and as if they would be perfectly useless, but are nevertheless just right for tearing apart the pine-cones.

THE SUGAR PINE

On the Pacific coast, we shall find another pine, quite as large as the white pine, which has a huge cone more than a foot long, but scarcely more than the width of a palm across. Out there, the Indians make up nutting-parties to get pine seeds, upon which they live, and this pine gives them some nuts. It is called sugar-pine, we are told, because it is one of the several trees with sweetish sap-wood, that is scraped off by Indians for a delicacy.

THE HEMLOCKS

Our Eastern hemlocks do not seem to have tempted anyone to eat them, unless partridges indulge in the tender sprays.



WHITE PINE

The most magnificent eastern pine that formerly grew in great forests in northeastern America. It is being sparingly replanted, and will thrive in light sandy soil.



BLACK WALNUT

This tree, in forests, has a tall straight trunk with deeply furrowed, dark-brown bark and heavy limbs. The nuts are nearly round, of dusky hue, with a hard shell, with shallow ridges.

Heretofore hemlocks furnished much of the cheap, splintery lumber used in house-building, but like every other great tree, they have been killed out; the use of the bark for tanning has helped.

A hemlock tree forms a splendid refuge for little birds as well as for the owls and vicious beasts that prey upon them. Many a ruffled grouse and rabbit has snuggled warm and dry under a low, swinging hemlock branch weighted down by snowdrifts. It is easy to tell the hemlocks. The narrow, little leaves are arranged on two sides of a twig, forming a knife-like spray, and their cones are very tiny. The tree, especially when young, is one of the most graceful of our evergreens.

Young hemlocks are likely to perch themselves on rocky ledges where they seldom get a good foothold for their roots; hence, they frequently blow over. They seem to be also, a special mark for lightning: I have seen a little tree in half a second stripped of all its greenery and branches, while the white core, broken at the top, and still glistening with sap, protruded from the wreckage, standing piteously among its feathery, untouched neighbours.

THE FAN PALM

In the South and West, not only the cone-bearing trees, but other kinds carry their leaves over the winter. California boasts of its great fan-palm, one of the few native palms, which sometimes grows sixty feet high, and which is often used in gardens to give a tropical air. The dead and dried leaves of many years droop in a shaggy mass, like a great fringe, beneath the living crown of green fan-shaped foliage.

THE PALMETTO

South Carolina, on the other hand, prides itself on the palmettos, trees which stand stiff and quaint along her coast, as well as along the coasts of more southern states. Although of no great value as a timber tree, the palmetto has been closely connected with the history of the state. As every schoolchild remembers, a Revolutionary fortification on one of the islands in Charleston's beautiful harbour was built

of earth and palmetto logs. These are spongy and elastic, and when the British fleet in 1776 bombarded this fort, the logs received and embedded the balls without splitting.

The palmetto appeared on a medal and on the upper corner of the flag of South Carolina — "the Palmetto State" — at the beginning of the Civil War, and a crooked palmetto rises in the centre of the state's present seal.

During the Civil War, the tree with a rattlesnake (apparently twenty or thirty feet long) wound about its trunk, was figured on banner and cockade, made of strips from its foliage, and on the seal of the seceding state. Oddly enough, none of these pictures shows the proper palmetto foliage, each leaf of which is shaped like an ordinary palm-leaf fan, split at the edges into slender divisions.

Strips of these leaves are woven with rushes, into baskets and various trifles. The bases of the young leaf-stalks, surrounding the solitary bud at the very tip of the trunk, are filled with long, strong fibres. This bud, containing all the growing parts of the tree, is ruthlessly cut out, killing the palmetto, in order to get the fibres, which are made into brush-bristles. The bud, itself, is cut out by Indians and negroes and boiled as a vegetable — whence the name, "cabbage palmetto."

THE EVERGREEN OR LIVE OAK

Both East and West have evergreen or "live" oaks in their southern parts. The live oak of the southeast is generally draped with quantities of Spanish moss, but that of California displays its dome-shaped head without the hoary veil. The leaves of the latter oak resemble those of holly, and remain on the tree until the new ones appear. The acorns are long and slender and are eaten by Indians, when better ones cannot be obtained.

THE BUTTONWOOD

Of all the many trees that shed their leaves in the winter, there are several that one can learn to know at a glance. Probably the buttonwood is the easiest to discover, but we must look for it along the banks of streams or in damp places, for although it grows elsewhere,



SUGAR PINE

A magnificent western tree with a straight, thick trunk sometimes more than 150 feet high. Huge cones over a foot long, but slender, hang from the tips of the branches.



WASHINGTON FAN PALM

Which grows in the deserts of California, and is useful for planting in arid soil. It sends its strong roots far down into the sand in search of moisture.



PALMETTO

The sabal or cabbage palmetto gives a tropical look to the southern coast. The bases of many leaf-stalks remain on the trunk and seem braided.



HORNBEAM

This tree forms a very pretty rounded head with beech-like leaves. Its lower limbs are somewhat irregular in growth. The seeds are sheltered by a three-lobed bract.

the buttonwood likes to have plenty of moisture for its roots. In fact, it often grows so close to water courses as to be undermined by them, and then tumbles in, while the great disc of roots rests edgewise on the bank. This tree can be seen afar, for great flakes of its dingy thin bark fall off, leaving curious white patches of inner bark gleaming on trunk and limbs. Countless balls of seed swing gaily from its clumsy branches through the winter. Towards spring they are broken up, being composed of little nuts, each with a tuft of rusty wool, and the birds help to tear them apart. In the Mississippi Valley the buttonwoods (or sycamores, as they are often called) grow to a great size, but are then often decayed within, only a mere shell of their wood and bark surviving. Early settlers utilised these vast hollow trunks, sometimes ten feet across, for smokehouses, grain-bins and the like, and even constructed shelters for themselves, by cutting great pieces of the thin walls of the cavity.

THE HORNBEAM OR IRON WOOD

Not far from the sycamore, we may find the small shapely hornbeam or iron wood. Both of these names refer to the extremely white and surprisingly hard wood contained in the slender furrowed trunk. So tough is it, that home-made brooms could be fabricated out of fine strips of iron wood. A "withe will last almost as long as iron wire, and an ox-gad . . . is nearly equal to a leather one."

The flexible branches of the European hornbeam, which closely resembles ours, were woven together to make those curious walled and roofed alleys of old-time gardens. Blue beech it is sometimes called, from its blue-gray bark smoothly stretched over its hard-looking, irregular trunk and limbs, and from the similarity of its foliage and round head to the larger tree.

THE SUMACHS

We shall doubtless see some sumachs when we are tramping across barren fields. There is nothing easier to distinguish on account of the cone-shaped masses of berries, each covered with crimson plush, which hold their own bravely during the winter.

In another article, we have spoken of the poison-sumach with its poisonous, dry white berries hanging like grapes. While all are closely related, it is to be remembered that any sumach with velvety, red fruit is safe to handle. In fact, one may taste the red plush berries, which are very acid, and not agreeable. Chickadees love them, and revolve about the spires until they gradually swallow all the seeds. In winter, we see why the staghorn is so called. Its thick, awkward, extremely brittle branches have a curve upwards not unlike a deer's horn.

THE SHAGBARK

Probably the shagbark, that tall, handsome hickory which farmers often leave standing in their pastures on account of the sweet-flavoured nuts it bears, will be an upland tree that we shall soon espy. If it is a full-sized tree, it will have a rather small and narrow head with a few crooked branches, bristling with smaller ones, pointing more or less upward. The trunk is generally tall, straight and slender, and it looks as if it had been shingled rather badly. Long narrow strips of its gray bark have become loosened at the sides and lower end and are attached only at the top, whence they hang like flaps or "shags." The hickory is famous not only for its seed-kernels, but for its strong, durable wood, which also makes splendid fire wood.

THE SASSAFRAS

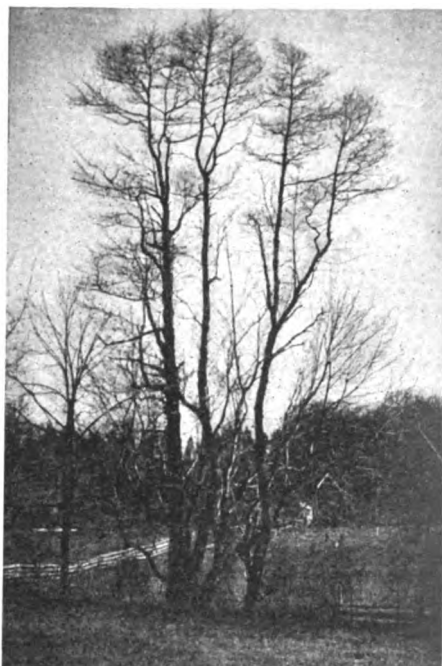
In searching for the shagbark, let us not confuse with it the quaint sassafras. It is also rather tall and straight but has a peculiar crown. The branches look as though they had started to grow to the right, then to the left, then swing back, and so on. The branchlets grow stiffly and crookedly upward, giving an oblong, round-topped outline which curiously reminds one of a many branched candlestick. The lower bark is deeply furrowed, gray and corky-looking, but the upper and smaller branches are smooth and yellowish-green.

The sassafras is one of the trees that grows smaller and smaller as it goes northward. In New England it is almost a shrub. But it is extremely



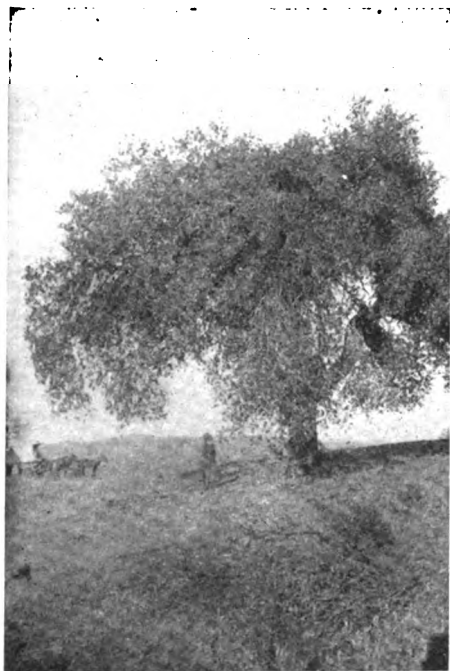
SHAGBARK

One of the most valuable hickories, both as a timber tree and for fuel. It is sparingly cultivated for its pleasant flavoured, thin-shelled nuts.



SASSAFRAS

A quaint little tree in the north, of little value for timber. It is aromatic in bark, leaf and root, and is used in rootbeer, sassafras tea, etc.



LIVE-OAK

A handsome but not valuable tree of California. Its holly-like foliage falls just as the new leaves are appearing. Its acorns are sometimes eaten by Indians.



WHITE PINE TRUNK

The trunk of the white pine, when given room and light, does not grow so straight and tall as when crowded in forests. The lower branches then die.



BIRCH SPRAY

Birches are frequently planted in parks for the sake of their beauty. Their lovely delicate spray is justly appreciated in winter, especially in the weeping varieties, where the twigs are elongated.



HEMLOCKS

Hemlocks usually grow on cool rocky hillsides, and sometimes have so slight a foothold that they blow over in tempests. They seem to attract lightning.



CEDARS

One of the commonest and most picturesque of our evergreens. Its wood is used for pencils and cigar boxes. It was a sacred tree to many Indian tribes.



CATALPA

A splendid tree when in flower, in July. The white, purple-spotted corollas are borne in great panicles. The leaves are broadly heart-shaped. It is often seen in parks.



BUTTONWOOD

This great tree, the buttonwood, or sycamore, as it is often called, is sometimes planted, like its European relative, in city streets, where it apparently thrives.

difficult to get rid of, for the merest fragment of root will start growing. These aromatic, warm-tasting, orange-skinned roots are the most valuable part of the sassafras. Probably the colonists learned to include them in root-beer by discovering that the Indians before them had made a drink out of sassafras.

THE WALNUT

At one time there were many black walnut trees scattered throughout our timbered lands, especially in the great forests of the Middle West. They were so common, and the wood was so readily split, that people made fence-rails out of them, saving one or two trees somewhere, perhaps, for the sake of the rich nuts. Then there was a call for black walnut as a material for cabinet-work and furniture. Its rich-brown, hard and firm wood can be readily polished and is light as well. But the demand for it, and the wasteful ways of the early settlers caused the larger trees to be entirely destroyed, and we seldom see fine specimens unless they have been saved near houses, or in an occasional pasture. Then we shall find that it becomes a noble tree with broad, rounded head, supported by a straight trunk, and wide-spreading heavy limbs, somewhat awkward in their manner of branching. The lack of delicate spray, and the odd, horn-like arrangement of the stubby branchlets, give the black walnut when leafless, an unfinished, gaunt look, which, with the dark-brown furrowed bark, will help to tell us what it is.

THE WHITE OAK

The white oak at first glance might be confused with a field grown black walnut, for it also has a splendid dome-like head. But it branches more regularly, is straighter, and is subdivided into smaller twigs. Its immense lower limbs stretch far out, level with the ground and not far above it. It is apt to have many faded leaves clinging to the twigs throughout the winter. They are oval in shape with regularly and deeply indented edges. The bark is rough and pale, and the wood is also light-coloured, tough and elastic. One should always be able to tell the white oak either in

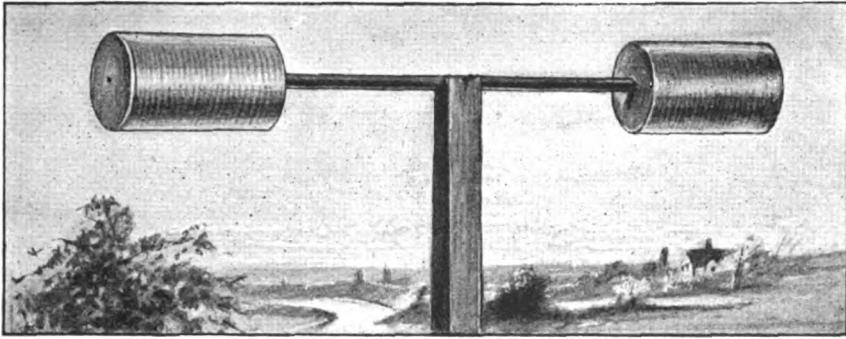
winter or summer, for it is one of the most valuable of our trees, not only on account of its majestic form, but for its timber.

THE CATALPA

A wild-wood tree, that we shall scarcely find growing north of Philadelphia except in cultivation, is the catalpa, or Indian bean, as the settlers in the South called it, having an idea that the slender cylindrical pods looked like snap-beans, and being in the habit of calling any native object "Indian" this or that, whether the actual Indian had anything to do with it or not. Certainly no Indian had any interest in the "beans" of the catalpa, for they contain nothing but rows and rows of winged seeds overlapping one another and forming a central rod in the leathery shell. But the pencil-like pods swinging from the twigs all over this ungainly tree, with its short trunk and wide spreading, not to say sprawling, branches promptly give us a clue to its name.

THE BEECH

The catalpas lack that delicate feathering of small twigs that we call "spray," but this is the chief feature of the elm, the beech and the birches. The beech's twigs grow smaller and finer as they approach the ends of the branches and are finished by the long, sharp leaf buds; but the birches have the most exquisite "spray" of any of our trees, except perhaps that of the American elm. In fact, winter is the best time to see the birches for then the delicate twigs, too fragile, it would seem, to stand the stormy weather, but really so flexible as to bend before it and thus escape danger, stand out clearly against sky and snow. And, when spring comes, and the yellow-powdered tassels are trembling on the spray, how they are tossed and flung about by the elastic branches, thus scattering the fertile powder to be carried on the wings of the wind. If the birches had no value as timber-trees, or oil producers, or bark-furnishers, for the many uses of the Indians, they would still be of inestimable value as ornamental trees for their spray alone.



The home-made barometer as it appears when completed and erected for use in the garden

A BAROMETER MADE AT HOME

CONTINUED FROM PAGE 5358.

THERE is a barometer of an entirely different kind from those that most of us know, that works very well, costs little for material, and can be made by any careful and persevering boy.

First of all take two sheets of stout white paper of good quality, stiff in texture, and of any convenient size. A good size would be twenty inches by thirty inches. Now let us roll up each sheet into a cylinder, and glue the edges in position, so that we have two tubes, or pipes. We next cut out, or ask a carpenter to make for us, four round pieces of wood exactly the right size to fit in at the ends of the cylinders. If there is any difficulty about getting round pieces of wood we may cut these drumheads out of thick cardboard; but let us remember that the cardboard must be very thick indeed. The boards, or drumheads, being quite ready, we fix these in the four ends of the cylinders, and glue the paper to the edges of the boards, so that they are perfectly air-tight. There must not be the least opening anywhere for the air to pass.

We now take a pole of any suitable length, an ordinary blind-rod is very suitable for the purpose, and with glue fasten a cylinder to each end, as seen in the picture on this page. We should be careful to see that the pole is fixed exactly in the centre of the round end of each drum, or cylinder.

Now let us decide where we are going to fix our home-made barometer. It is best to put it in some position sheltered from the rain, though open to the air—under a verandah outside the house, or under the roof of an open shed. Having selected the spot, we erect a post of any

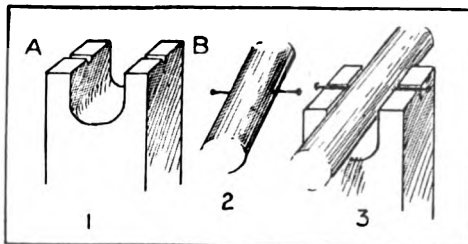
suitable height—four or five feet would do admirably, although the height is not a matter of the least importance. Dig a hole, and insert the post so that it is perfectly upright. Then fill in the hole and press down the earth all round. The next thing we have to do is to shape out a groove in the top of the post, as seen in the first diagram. We can do this with a keyhole saw, and can then smooth the groove with emery-paper. At the places marked A and B in diagram 1 we cut two little grooves crosswise, and polish these very smooth.

The groove at the top of the post is for the pole with the drums to work in. We take the pole, and on each side drive in a pin, these pins being for use as pivots

to work in the small grooves A and B. We move the pins until we get them in a position that enables the pole to balance on top of the post with the two drums, or cylinders, exactly on a level with each other. Then we take out the pins and replace them with smooth, thin, strong

French nails, as shown in diagram 2. The pole balances on the post, as in diagram 3.

Only one thing is now needed to make our barometer indicate the changes in the weather. We bore a hole with a good-sized gimlet in one of the wooden ends of one cylinder only. This establishes communication between the outside air and that in the cylinder, while the air in the other cylinder is that which was enclosed in it, and is cut off from outside air. If the outside air is heavier than that in the closed cylinder, the cylinder with the hole will go down, and this indicates fine weather; while if the surrounding air is lighter than in the closed cylinder, the cylinder with the hole will rise, and this means wet weather is coming.



1. The grooves at top of the post. 2. Nails in the poles for balancing. 3. How the pole balances on the post

THE GAME OF MAKING RHYMES

A VERY good pastime for boys and girls, and for grown-ups, too, as they sit round the table on a wet evening, is to make up two-line rhymes, each taking it in turn to give to the others the word they are to use at the end of the first line, and for which they must find another rhyming word at the end of the second line. It is quite easy to make up a two-line rhyme, provided that the word given is one which has many other words rhyming with it. For instance, the word *then* might be given, and we might have some such couplet as this:

A little nonsense now and then
Is relished by the wisest men.

The great idea in playing this game of making rhymes, however, is, when our turn to give a word comes, to pick one that has no rhyme.

There are many such words in the English language, and here are some of them: Alb, breadth, bulb, chimney, coif, depth, doth, eighth, fifth, film, fugue, gulf, hemp, lounge, mouth, mourned, ninth, oblige, orange, of, pint, polka, pork, porringer, prestige, puss, sauce, scarf, silver, sixth, spoil, sylph, tenth, twelfth, plagued, warmth, wasp, wharves, widow, width, window, with, wolf, wolves.

When it is someone else's turn to give a word to which we must find a rhyme, and they give a word like one of these, it is worth knowing that the difficulty may sometimes be overcome by ingenuity. For instance, orange and month have been used in this way:

From the Indus to the Bloreng
Came the rajah in a month,
Eating now and then an orange,
Conning all the day his Grunth.

The Bloreng is a hill near Abergavenny, and the Grunth is the sacred book of the Sikhs. Here are two other attempts with month:

"You can't," says Tom to lisping Will,
"Find any rhyme for month."

"A great mithtake," was Will's reply;
"I'll find a rhyme at wunth."

How many weeks in a month?
Four, as the swift moon runn'th.

Another rhyme to orange is the following:

I gave my darling child a lemon,
That lately grew its fragrant stem on;
And next, to give her pleasure more range,
I offered her a juicy orange.
And nuts, she cracked them in a door-
hinge.

Porringer is a difficult word to rhyme, but the difficulty has been met in these ways:

The Second James a daughter had,
Too fine to lick a porringer;
He sought her out a noble lad,
And gave the Prince of Orange her.

When the nations doubt our power to fight,
We smile at every foreign jeer,
And with untroubled appetite
Still empty plate and porringer.

A rhyme can sometimes be made by splitting a word at the end of a line, as in the following example, which gives a rhyme to polka:

Our Christmas tree produced a doll ca-
Parisoned to dance a polka.

Window and widow have been rhymed.

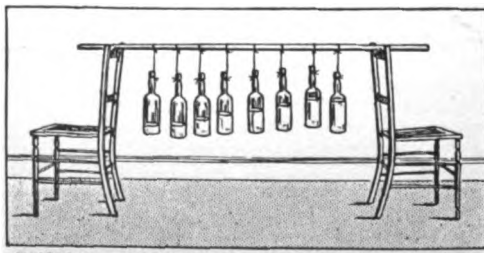
Bold Robin Hood, that archer good,
Shot down fat buck and thin doe,
Rough storms withstood in thick greenwood,
Nor cared for door or window.

Since of this suit I now am rid oh!
Ne'er again I'll lodge with a widow.

When difficult words are given for rhyming, it always causes surprise and adds greatly to the interest of the pastime if we can overcome the difficulty in some ingenious way like those given.

A MUSICAL INSTRUMENT FROM OLD BOTTLES

AN amusing and clever musical instrument may be made from a number of old bottles, such as we buy lime-juice or vinegar in. Even medicine bottles will do, but the bottles should be all the same size. Having collected our bottles, we take an ordinary broomstick and rest this on the backs of two chairs as shown in the picture. Then we tie the bottles to this stick, so that they hang loosely and not too close together. Now comes the work of tuning up, and this we may do by pouring water into the bottles, a different quantity into each, putting more water for a low note and less for a high. To get the note of each, we tap it with a stick—the edge of a boxwood rule is a very good thing for this purpose. With patience and perseverance and a little ordinary care and skill, we shall at last have



MUSICAL BELLS MADE FROM OLD BOTTLES

our bottles all tuned and ready for use, and we can now play the curious instrument by striking the bottles with the edge of the rule. Of course the bottles need to be strong, or the striking would break them, but we need not

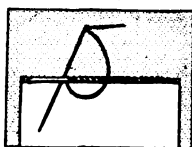
strike very hard. It will be found that simple tunes can be played on the bottle-bells, and after some practice we can take two sticks and thus play quicker tunes. It is, of course, essential that the bottles should be hung at such a distance that they do not knock against each other when struck with a rule or stick. Much fun can be obtained from this home-made instrument, which should only be used out of doors, in case the bottles break and the water runs out on the ground, although there is no need, if care be exercised, to have any such accident.

A DAINTY AFTERNOON TEA-CLOTH

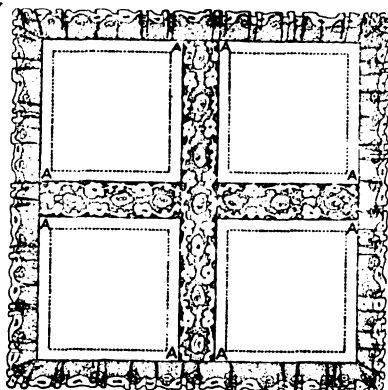
UNTIL we have tried it, we can have no idea what a pretty afternoon tea-cloth can be

made of four linen handkerchiefs joined together by strips of lace. Nothing could be simpler, or easier to make, and we shall find that this is the best way to set about the work. Buy four plain linen hemstitched pocket-handkerchiefs of equal size, and lay them side by side, in two rows, to form a square, leaving a space of about 1½ inches between them, to be filled in by lace insertion, as shown in picture 2.

We must measure carefully the quantity required, because the size of handkerchiefs varies considerably. The insertion should be joined to the handkerchiefs by means of *whipping*, or tiny over-and-over stitches, which, in case we have forgotten, are worked as shown in picture 1. We lay the edge of the insertion against the edge of the handkerchief, working the two together in this way, but being careful not to pull the stitches too tight. They should be just tight enough to hold them together. The next thing to be done is to sew on all round the cloth a frill of lace to match the pattern of the insertion, which adds in no slight degree to the general effect of the cloth.



1. The whipping stitch



2. The handkerchief tea-cloth

This lace should be whipped up and then joined to the cloth. We must make a tiny hem of the rough edge of the lace, whip it, and draw up the cotton until we have got the lace to the right fullness, remembering that if it is too full the effect is not pretty. The gathered frill should be joined to the cloth, just in the same way as we joined the insertion. It is important, of course, that the lace should be put on quite evenly, and the only way to be sure of doing this is to divide the length into four parts, which should be marked with pins, and, later, when the whipping is done, pinned to the four corners of the cloth.

The insertion will need to be carefully joined to the lace where the two meet, at the places marked A A in picture 2. To make it quite firm, the insertion should be finished off with a tiny hem, to which the lace can be afterwards sewn. If something more elaborate is wanted, little embroidered handkerchiefs could be used instead of the plainer ones shown in the picture. Plain linen handkerchiefs cost about 20c. each, and the embroidered ones a few cents more; while for the lace we can pay almost any price we choose.

CUTTING AN APPLE INSIDE WITHOUT PEELING IT

TO cut the inside of an apple in half without cutting the peel may seem impossible, but it is not really so; and if we follow these directions we shall be able to perform this puzzling feat. Take a good, crisp, sound apple of moderate size, and a needle with thin but strong thread, such as is found in any home.

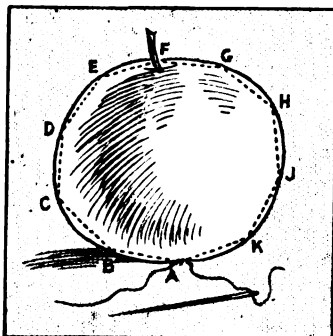
Now insert the needle at the point A, and push it through the apple to the point B, pulling a good length of thread through, but leaving 10 or 12 inches hanging out at A. Now insert the needle again at B, and push through to C, drawing the thread well through; then thread from C to D, and so on right round the apple and back to A, forming in the course a decagon, as shown in the picture. We now have the two ends of the thread hanging out at A, and if we put these gently but firmly downwards we shall, with the thread that forms the decagon, round the inside of the apple, be able to cut the inside of the apple clean in two without injuring the peel. The thread is, of course, pulled right out at the bottom, A.

This feat is capable of considerable development. Having cut the apple in half in the manner indicated, we can again thread the

apple all round in another direction, and cut it into quarters, and then in still another direction, dividing it into smaller pieces.

Much fun is to be had from this feat, for we may give a friend an apple thus divided, with the request that he will peel it for us. It is very amusing to watch the expression on his face when, after peeling the apple, he finds

that the inside is cut up. Any boy can perform this feat after a little practice, but we must be careful to choose a sound apple, and also a strong thread that will not break when we pull the ends to cut the apple. Of course, a very thick thread should not be used, or the places where the needle is inserted would be too conspicuous. On the other hand, with a thin thread of sufficient strength, the holes made by the needle and thread need not be visible, or, at any rate, not visible



HOW TO CUT THE APPLE

except upon a very careful examination.

We should not choose a large apple until we have had considerable practice with those of smaller size, as the larger the apple the more difficult it is to pull the thread through without breaking it and without making a rather ragged mark at the bottom of the apple.

A CARD THAT HELPS US TO MAKE DESIGNS

ON this page we see a square with a black line running from each corner towards the centre, and contained in this square are four designs—one a circle, another shaped something like a leaf, the third is like a ?, and the fourth is a double curve, something like a printed S flattened out nearly straight. In addition to these four figures there are eight stars dotted about at intervals. From this simple square we can make a great number of different designs, some of which are very complicated.

We must take an exact tracing of this square, and cut out a similar design in cardboard. This will save us from spoiling our book. Having cut out the square in cardboard, we place it upon a sheet of white paper, and run a pin through the black dot in the centre of a little star—anystar will do. We must be very particular to see that the pin holds firmly, otherwise our design will be spoiled. We shall now begin to make our design, using, let us say, the circle. We take a soft lead pencil that has been sharpened to a nice point, and make a mark on the white paper opposite the corner of the square, the line from which points to the circle.

Now we take our pencil, and, beginning on the edge of the circle nearest the centre of the square, we draw round and round the circle continuously again and again, but as we are drawing we keep on gradually and slowly shifting the square card round a little to the right.

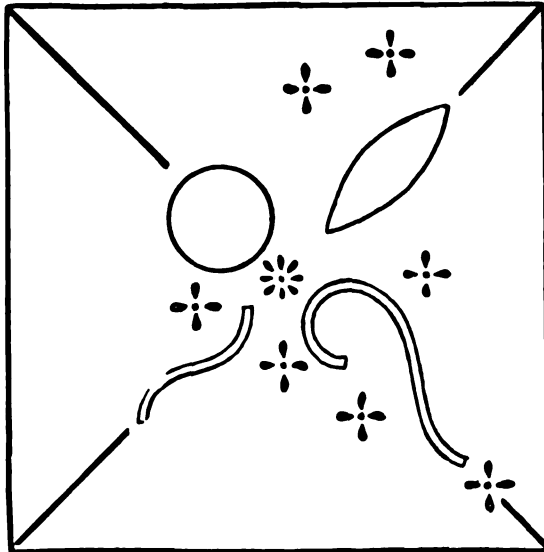
rate at which we move the square card round as we are drawing the circles. If we want the lines very close we must shift the square slowly, and if we prefer them wide apart we must move the square quickly.

The important thing is to see that we move the square at the same pace throughout. If this be not done, we shall get an irregular design instead of the neat and regular design we expect. When we have practised with the circle we

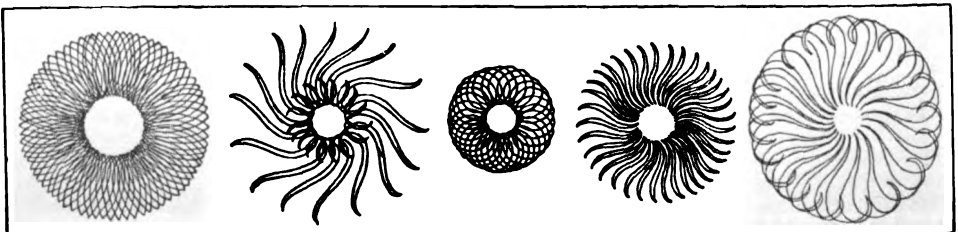
might try the leaf design, drawing our pencil round and round as we did in the circle. In making designs from the other two figures the pencils must be run continuously from one end of the figure to the other, backwards and forwards, along the whole length of the curve or slit. On this page we see a few of the simpler designs, but when we become more expert we can use two, or even more, of the figures in making one design, thereby getting very beautiful and intricate patterns. The designs

will be of different sizes, according to which star it is that we place the pin through as a centre.

There are several things we must not overlook. To begin with, we should always make the pencil-mark opposite one corner of the square, so that we know exactly when the card has been right round on the pin. If this is omitted, we shall probably overrun the starting-point, and spoil the design. Much, too, depends upon the pin remaining upright and immovable, for if it shifts we shall spoil the



THE GEOMETRICAL DRAWING CARD



SOME OF THE DESIGNS THAT CAN BE MADE WITH THE GEOMETRICAL DRAWING CARD

We keep on drawing round and round the circle, and at the same time moving the card slowly and evenly round at the same pace until the corner comes back to the spot from which it started. If we now remove the card, we shall find on the paper a circular design similar to the middle one shown in the set of designs in the second picture. Whether the lines are close or wide apart depends upon the

regularity of the pattern. Above all, we must remember that the whole beauty of the picture we are making depends upon the uniform rate at which we move the square and the pencil while drawing.

The designs shown in the second picture are only a few of the beautiful patterns that can be made with this little device, but they show the possibilities of the geometrical drawing card.

WHAT TO DO WITH A BUNDLE OF STRAW

THERE are quite a number of toys that can be made out of a bundle of straw, and if we look at the pictures on this page we shall see two or three that are well worth making.

The basket is perhaps the easiest to make, so we will attempt that first. To begin with, we shall have to pay a visit to a big stationer's, or a kindergarten shop, and buy a bundle of straw. From this we pick out thirteen straws of exactly the same length. Leaving these for a moment, we find a piece of cardboard, which must be cut quite round. This is for the bottom of the basket. Now we bore thirteen holes round the edge of it, taking care that they are at the same distance apart. The best way to go to work is with a little compass. The holes must be large enough to admit the straws, and yet not large enough to allow them to slip out again. A little ordinary care will be needed, but we shall be well repaid for all our trouble.

Now we fix the straws in the holes, leaving them standing out just a little at the bottom to form the feet. The sides of the basket come next, and these are made by weaving very narrow ribbon in and out among the straws, beginning at the bottom. If we have no ribbon handy, a long, narrow strip of coloured tissue or crinkled paper will do quite as well. When we reach the top, we turn the ribbon or paper under and over the last row to form a round border, as shown in picture 1. Then we tuck the end out of sight, after touching it with gum, and our dainty little paper-basket is quite complete.

The garden-seat, shown in picture 5, is almost as simple to make. The part forming the back and seat is made of nineteen straws, joined together with florist's wire, which can be bought for a nickle a spool. They must be fastened exactly in the middle, and to do this properly it is as well to mark the exact centre of each straw with a pencil before making a start. We need six pieces of wire twice the width of the straws when they are placed together. We begin by twisting the ends of two lengths of wire together and bringing them back and front of the straw, as shown in picture 2. Twist the wire and treat each straw in the same way, until the whole of the nineteen are fastened in the middle. Then fasten off the ends just as we started them.

The two ends of the back and seat must now be handled in the same way, as shown in picture 5, and care should be taken that all the ends of the wire are finished off neatly.

Now for the foundation to hold the straws together and to keep the whole firm. The two long straws in the oblong for the top of the foundation of the seat should be fully an inch

shorter than those we have just fastened together, to avoid their showing, and the short ones that come across should be just slightly less than the width of the seat. We thread these four straws with wire to make them firm, form them into an oblong, and then secure the ends of the wire.

The four legs are all of the same length, and, as we can see, slope outwards. We fasten them at the top with gum or fish-glue, after they have been hollowed a little with a sharp knife and fitted into the oblong straws.

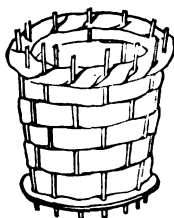
The bottom of the foundation has only three straws, two short ones to hold out the feet, and one long one. These are fastened into place with wire. First the short ones have wire passed through their hollow centres, then the ends of the wire are fixed round each leg and twisted to keep it tight and firm. The one long straw is threaded with wire, and the ends twisted round the middle of each of the short straws, as shown in picture 5. For the foundation of the back of the seat, the reclining part, we make another oblong, and fix it firmly to the back straw of the lower oblong with wire. Then we glue the back of the seat to its support, and the little garden-seat is quite complete.

The camp-stool, which can be seen in picture 3, is made of four long straws of equal length, two short ones to serve as supports for the legs, a piece of fancy paper for the seat, and two straws of exactly the same width as the seat to keep the paper firm. For a beginning it would be a good plan to gum these straws to each end of the paper, ready for use when the little stool is made. Now we bore holes in one side of each of the long straws only, and in exactly the same place on each. Then we fix in the short straws, which act as supports, as seen in picture 3. The long straws are now placed in the form of an X, and fastened with a good-sized pin, which should have the point at once turned up with pincers. We place into position, and touch the top of each of the four supporting straws, or legs, with gum,

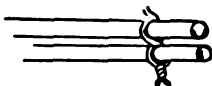
and then lay the seat over. The top of the legs should come right against the ends of the paper that has been gummed round the straw.

A fine little ladder can be made of two full-length straws, threaded with wire the rungs being made of shorter lengths of straw, fitted into holes that have been cut in the uprights to receive them. The distances apart should be carefully measured and marked before we attempt to cut the holes, as shown in picture 4.

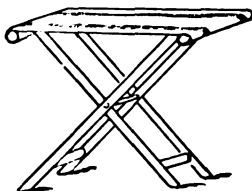
A sharp pair of small scissors should be used for boring holes, or, better still, a stiletto, such as one often finds in an ordinary needle-case.



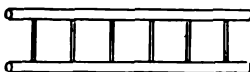
1. The basket



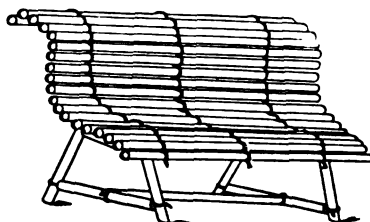
2. Twisting the wire for the seat



3. The camp-stool



4. The ladder



5. The garden-seat

THE PUZZLES OF THE WIZARD KING

1. TRANSPOSITIONS

Complete, I am a letter strongly pronounced; behead twice, I am a robber; behead again, I am angry; behead again, I value; behead again, I am the past tense of a verb meaning to devour; curtail, I am a preposition; restore to "value" and transpose, I lacerate; curtail, I am a beverage; restore to "lacerate" and behead, I am part of the head; transpose, I am a fixed point; restore to "value" and curtail, I am an animal; reverse, I am a sailor.

2. SINGLE ACROSTIC

My initials will form the name of a great statesman.

(a) A game; (b) a flower; (c) an animal; (d) a weapon; (e) a bag; (f) a town in France; (g) a precious stone; (h) a girl's name; (i) a tree.

3. THE DINER'S REPLY

A gentleman was seen coming out of a restaurant by a friend, who said to him: "Well, did you have a good meal?"

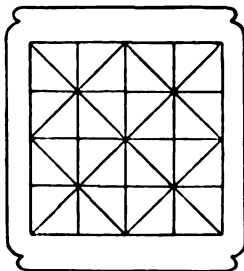
The gentleman replied in the following curious way:

"I 8o."

Can you say what he meant?

4. THE MAGIC SEAL

This strange seal was used by an Eastern king upon all his state documents, and it was a favourite habit of his to ask all who came to the court, and those to whom he sent letters and commands, to count the number of triangles of all sizes in the square design in the middle of the seal. The courtiers spent a great deal of their time trying to solve the problem that had been set. Some gave one number and some another. How many triangles are there?



The king's seal

5. RIDDLE-ME-REE

My first is in mountain, but not in hill;
My second's in river, but not in rill;
My third is in corn, but not in rice;
My fourth is in snow, but not in ice;
My fifth is in rye, but not in oat;
My sixth is in ship, but not in boat;
My seventh's in stone, but not in slate;
My eighth is in soon, but not in late;
My whole, no doubt, will plainly show
A poet great we all do know.

6. ENIGMA

The poet Schiller wrote this verse. Can you guess what he means?
A bridge weaves its arch with pearl
High over the tranquil sea.
In a moment it unfurls
Its span, unbounded, free,
The tallest ship, with swelling sail,
May pass 'neath its arch with ease,
It carries no burden, 'tis too frail,
And when you approach it flees.
With the flood it comes, with the rain it goes,
And what it is made of nobody knows.

7. DOUBLE ACROSTIC

My initials give a poet, if you read them with ease;
Finals, one of his poems, which many will please.

1. A bold, daring person, who goes forth for fame.
2. With meadow or prairie you will find this the same.
3. To ensnare or beguile by this word is said.
4. And Socrates wooed her when she was a maid.
5. A poet of Italy next you must find.
6. Merriment reversed, at least to my mind.
7. A very simple thing, easy to write.
8. One or t'other, not both, this word doth indite.
9. Full of guilt, but conscience-struck.
10. To jerk, to tug, it is my luck.
11. A lake that bathes Canadian shore.
12. Palsied like this, my last I could not reach.
13. As in the wild, the ground it hurries o'er.

8. CHARADES

My first may spring from a grey goose wing;
A king is but my second;
Of the works of men my third has been
The bravest object reckoned.
And without my first my whole would be
A thing unknown to you and to me.

9. THE PUZZLING BIRDS

Two birds were talking one fine day,
About each other's names.
The one cried out: "Now come let's play
At little children's games."

"Done!" cried the other, "but I've no head
For puzzles, you'll agree;
Give me your head, and have instead
The head that owneth me."

The first agreed, and his looks sable
Part of a ship became!
The other was a vegetable,
And neither knew his name!
What were the birds?

10. BURIED FLOWERS

Shall I put this scrap in Kate's album?
Tell your father I called to see him.
What lovely hair! I should like mine to curl like it.
If that man is insane, money should not be given him.
My cousin Ada is your sister-in-law.
My brother is gone to Japan, Syria, and India.
Will Mr. Carlo be liable for this?
Hark! how Tom and Sarah are bellowing in the nursery.
I read to that poor negro several times a week.
This case is urgent; I anticipate a good sum.

11. TWO SHORT YEARS

Why was the year 1888 so short? If you know, can you say why the year 1889 was shorter still?

12. SQUARE WORDS

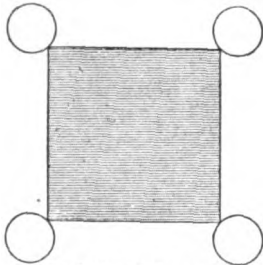
1. A hunt; a hut; to take advantage of; a French river; a girl's name.
2. Not wild; a field; to signify; an Irish lake.

13. CONUNDRUMS

- What is the only thing that can live in the midst of fire?
 When may a bird be said to occupy a feather bed?
 Which is the longest letter in the alphabet?
 Which word is shorter for having a syllable added to it?
 What is that which by losing an eye has nothing left but a nose?
 Which is the best way to make a coat last?
 What is that which nobody wishes to have and nobody likes to lose?

14. THE FIELD AND THE PONDS

A farmer who had a square field with a round pond at each corner of it was anxious to double the size of the field and still have the four ponds on the borders of the field. But he wanted to keep the field square in shape. This is a diagram of the fields and ponds as they were originally. How did the farmer double the size of the field, keep it square, and yet manage to have the four ponds on the borders, as he wished to do?



The field and the ponds

ANSWERS TO PUZZLES ON PAGES 5357 AND 5358

1. Spokes: 1. Iota; 2. Idyl; 3. Ibis; 4. Iron; 5. Idol; 6. Isis; 7. Iris; 8. Isle. Type: "Alps on Alps arise," Pope.
 Inner Circles: 1. Try, and you will soon find it all. 2. Oh, do be sure to discover this all.
 2. Begin with the first bracketed words, and then read the words above and so on.
 Do not covet all you see, for he who covets all he sees often wants more than he sees.
 Do not tell all you hear, for he who tells all he hears often tells more than he hears.
 Do not spend all you have, for he who spends all he has often spends more than he has.
 Do not say all you know, for he who says

HOW TO MOVE A PENNY WITHOUT TOUCHING IT

THERE are many coin tricks with which we can amuse ourselves and entertain our friends, and one of the simplest is that of moving a penny without touching it. To perform this trick we require five or six coins; pennies or any other coins will do.

We should see that the table has a smooth surface, otherwise the trick will not work successfully. Placing a penny on the table, we ask the company present: "Can anyone move this coin without pushing the table, or touching the coin with the body, or with anything held in the hand or mouth, and without blowing it?"

Someone is almost sure to say that the thing is impossible, whereupon we inform them that the trick is quite easy, and proceed to show them how it is done.

We take four or five other coins, and place them all in a line at the edge of the table.

all he knows often says more than he knows.

3. Roach, shad, cod, herring, turbot, barbel.

4. B L I N D
 L O V E R
 I V O R Y
 N E R V E
 D R Y E R

5. A river.

6. Cowslip—Buttercup.

7. The diagram shows the course of the pen. In order to make this clear, spaces are left

R O B R O Y

where the lines should be extended so as to meet.

8. Between the dark and the daylight,
 When the night is beginning to lower,
 Comes a pause in the day's occupations
 That is known as the children's hour.
 9. Leaves, eaves, aves, save.
 10. The squirrel takes out one ear of corn each day, and his own two ears.
 11. The letters are, L, B, T, O, D, J (jay), P and A (aye).
 12. (a) Titus Andronicus; (b) William Shakespeare; (c) Cornelius; (d) Cleopatra; (e) Duchess of Gloster; (f) John of Gaunt; (g) Coriolanus; (h) Andromache.

HOW TO SHARPEN A PENCIL

In pointing a lead pencil with a knife, if we have strong, steady fingers we hold the pencil in the left hand, point toward us, and, placing the right thumb under the end, cut the wood and lead to a point while turning the pencil gradually round with the left hand.

HOW TO PEEL FRUIT

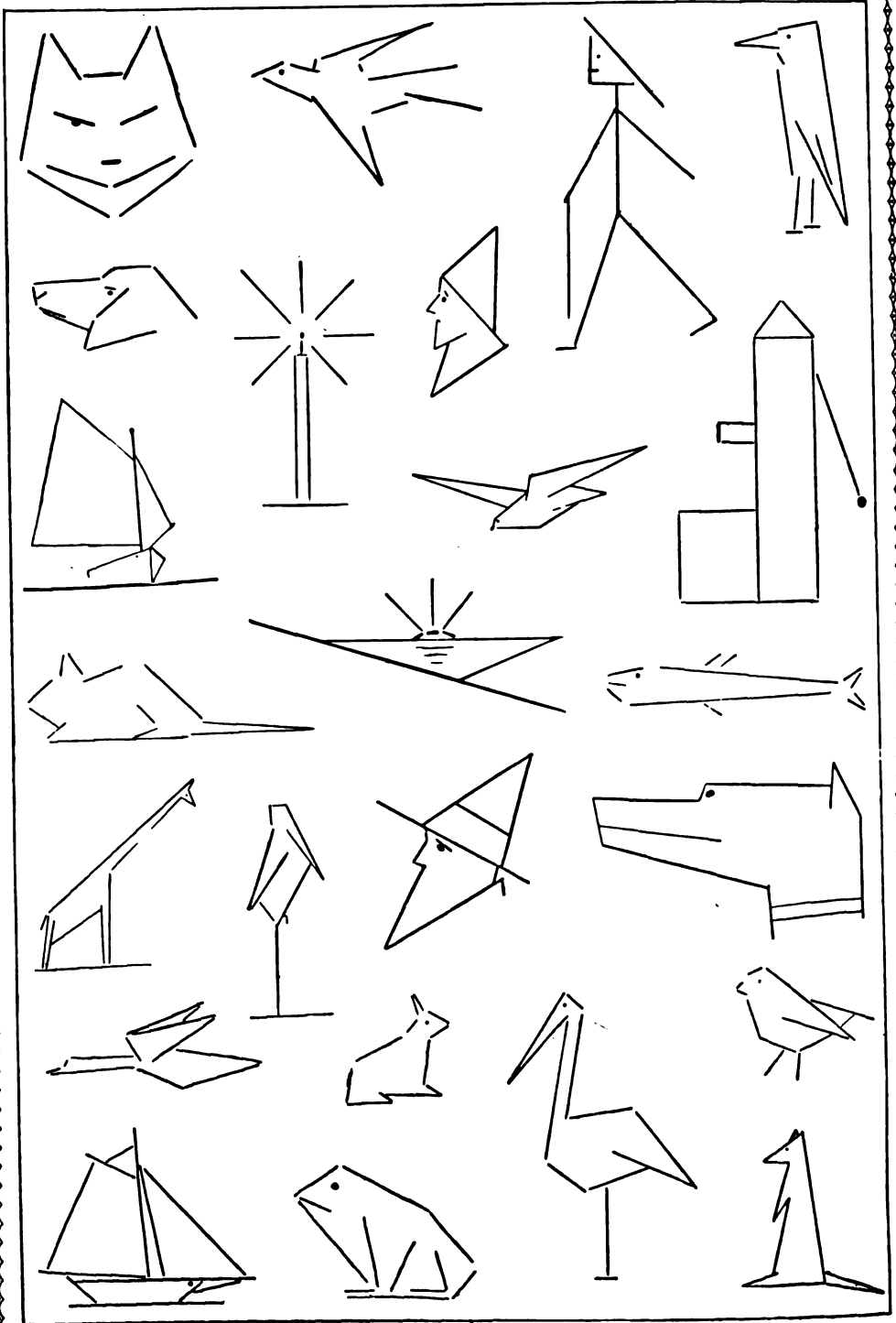
To peel an apple or a pear, we hold it firmly in the left hand, and, starting at the "eye," pare it thinly and evenly round and round the fruit till the stalk is reached. We must see that no little patches of peel are left on the surface and that the peel is not cut too thickly. Stone-fruit is sometimes conveniently peeled in strips downward. A banana is held upright in the left hand, and the rind stripped down in sections toward the other end.

Each coin must just touch the coin adjoining, and the coin that we are to move without touching must be the last coin at the left-hand end of the line. The great thing to bear in mind is that all the coins must touch.

We then press firmly on the coin at the right-hand end of the line, so that it is impossible to move it. Then we take another coin, and, pressing upon it with the first finger of the right hand, we slide it along quickly so that it gives a smart tap to the coin that we are holding down. Instantly the coin at the other end of the line will move along an inch or two, although the coin that we tapped has not moved at all.

The reason why the end coin behaves in this manner is easily explained. When the first coin is struck, energy is imparted to the struck coin, and this energy is transmitted from one coin to another until the end coin, having nothing to stop its progress, moves along.

HOW TO DRAW A PICTURE WITH 12 LINES AND A DOT

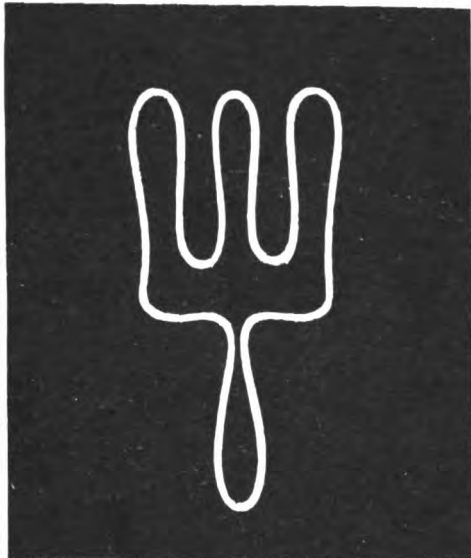


These clever pictures were all drawn by boys and girls, and they are all made up of twelve straight lines and one dot, neither more nor less. It is far more difficult to draw anything if we are confined to a few lines than if we can put in as many lines as we like. Let us see if we can make some drawings with twelve lines and a dot as good as these.

MAKING SPINNING PICTURES

ANY boy or girl can easily make for himself or herself a series of pictures from which a good deal of entertainment can be derived. Cut out a piece of cardboard the

picture a piece of thin string or a piece of thread as seen in the small picture in the middle of the page. That picture, of course, does not represent the size of the

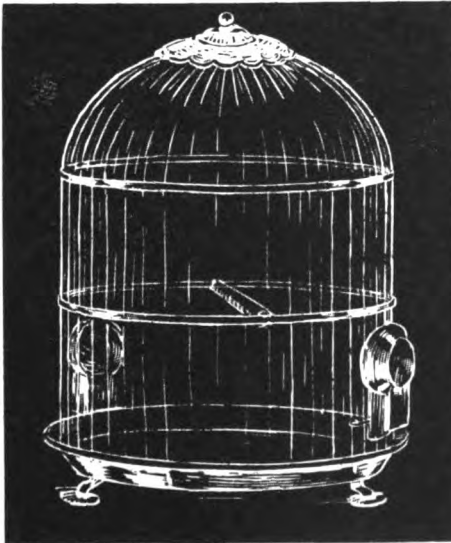


exact size of one of the black pictures on this page. Upon one side of it trace the fish seen in the top picture on the left, keeping it in the exact position on the card as shown in the picture and making all the rest of the card black; on the back of the card trace the grill shown exactly as it is in the top picture on the right side. Now make two pinholes in the card, and fix to each side of the



card, but only the method of fixing the string or thread. Then twirl the string between the fingers and thumbs and the card will spin round rapidly, making the two pictures blend into one so that the fish will seem to be lying on the grill.

The lower pair of pictures, showing the parrot and the cage, can be made in the same way. When the card is spun, the parrot will seem to be inside the cage.



MAKING A BASKET OF RAFFIA WORK

RAFFIA is another name for bass, which we use in the garden for tying up plants. It hangs in a familiar yellow bunch in the greenhouse, and we all know it quite well. Here we are going to learn how to make a basket-bag with it.

There are two kinds of this material, one a little coarser in texture than the other. This is really the bass, and it comes from the bark of the lime-tree; while the raffia, which is finer, is made from a palm grown in Madagascar. Specially prepared raffia may be had at all good fancy-shops in large or small hanks. As it can never be got in very long pieces, frequent joins are necessary, and the simplest way to join it is to make an ordinary knot and cut the ends off neatly—but not too closely or it will come undone again—for we are going to use raffia like wool, and work it into a basket with a crochet-hook, afterwards plaiting a handle, and finally decorating it with small tassels. When we get our bundle of raffia we undo it and shake it out, then we select about forty

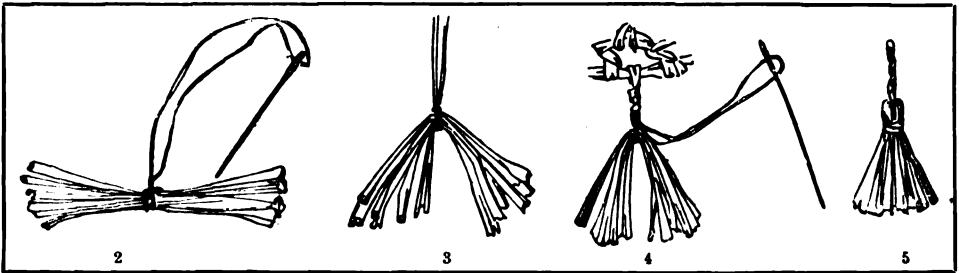
To begin our bag, we make 20 chain stitches; return, making one treble into each alternate chain, missing the chain in between, but making one chain between the trebles. The next row is made of one double crochet into the hole formed between the two trebles, and one chain in between each double crochet, so that there will be 10 chain and 10 double crochets in each row. This makes the body of our basket, and is continued backward and forward for 22 rows. The 23rd row is the same as the 2nd—a line of trebles and chain. We must adjust with our fingers, and straighten out our work if necessary, as we go



HOW TO JOIN THE RAFFIA

along. We finish off in the usual way, and press our strip of work with a warm iron.

Any projecting "ends" are now snipped off with the scissors, and we proceed to make a bag of our strip by folding it in half and joining up the two sides. To do this we take a darning-needle with a big eye, and thread it with a *thin* strand of raffia, and sew the sides together with "over-and-over" stitches.



HOW A RAFFIA TASSEL IS MADE

of the nicest and longest strands, having as nearly as possible an equal thickness. There are always one or two unsatisfactory strands in every bundle. Those with a hard, green edge are not nice to work with, for they split as we twist them round the crochet-hook. We knot our strands of raffia together, cutting away any thin, straggling ends, and winding it round a postcard as we join it.

The knot to use is shown in picture 1. We tighten it by pulling both ends and both strands from either side *together*, and then pinch the ends back along the strand with the fingers to make them lie flat. It is best to leave about an inch, and if the ends do not "work in," we can cut them off from our basket afterwards. This is a pleasanter task than it sounds, as the raffia has a very fresh, hay-like smell, which comes out as we handle it.

We must use a bone crochet-hook of medium size, and the secret of success is to work very loosely. Each loop must be sufficiently large for the next one to be pulled through easily.

If neatly done, the join will hardly show. The four tassels ornamenting the bottom of our bag are made of six or seven stout strands three inches long. We tie them across the

centre, as shown in picture 3, with a double strip of fine raffia, threaded through a needle. We must pull it tight, and pinch the two ends together, as shown in picture 4. But before we quite finish the tassel, or give it its little "waist," we attach it to the bottom of the basket by passing the needle through a double stitch, drawing the tassel nearly up to the basket, leaving a quarter of an inch of raffia, round which we wind our thread. We insert the needle in the tassel again, and come out just low enough to make the "waist," as shown in picture 4. A double twist round the raffia will do for this, and then we make a knot to keep the bind firm by making a buttonhole stitch into the bind. We pull it tight, and cut off our thread, leaving the end as long as the tassel. We do not cut it off short, because raffia is so springy that



THE BAG COMPLETE

it might come undone. There are four tassels, and each one is, of course, made and fixed in the same way.

Now for the handle. We take six strands of stout raffia, thirteen inches long, and plait them together in twos—just as we plait our hair—tying the ends for the time being with a piece of cotton to keep them together. To fix the handle to the basket, we undo one end of our plait for about one and a half inches, take three strands, and thread them between a treble at the side of the top of the basket. We pull them all together again, and join them to the other three strands with a bind, which

is made by winding a thin thread round and round, as we have learnt to do for the tassels. For these two tassels we shall need to go round several times, and must finish off with two knot stitches this time, for the handle has to bear a greater strain than the tassels on the bottom. We fray out the remaining end of the plait which forms the tassel, and cut off any uneven ends, fix the other side of the handle in just the same way, and our bag is finished.

If the raffia is hard when we buy it, it can be plunged into hot water and left until cold; removed, shaken, and used when dry. It will then have become quite soft and pliable.

THE GAME OF WHAT IS IT SOME FAMILIAR THINGS THAT WE ALL KNOW

A NUMBER of well-known things are described on this page, and, after reading each description, we should try to guess what the articular thing that is referred to is. The correct answers are given in the next part of the book.

1. There is a hard, dull little bit of something that looks as if it had come out of the earth. No wonder its name means "foam," for it is so light that once it floated on the top of a hot, vaporous stream in an island of the Mediterranean. After the stream had cooled, someone picked up the foam, thinking that it would be useful for scraping paint off wood or for taking ink off fingers, or that it might be powdered and made into soap.

2. Look at this dainty, fragile little object on the window-sill, with its cool feel, soft as a feather's. It is not really white. If we look close, we see that it is transparent, with six delicate arms. Perhaps we can see only four. Then two must have been knocked off during a long journey, when its companions jostled it as they all tried to get here first. There! It can't stand our hot hands, and has vanished, leaving a wet spot.

3. Ages, perhaps 50,000 years ago, millions and millions of tiny creatures lived on the surface of the sea. As they were soft, they found it necessary to make armour for themselves as a protection against the creatures that gobbled them up, so they took lime out of the water and made themselves hard coats. When they died, their little bodies sank down to the bottom of the sea in such numbers as to bury up the bodies of fish. The descendants of these tiny creatures are doing just the same thing in the Atlantic now, and what do you think their coats, pressed together, make?

4. "Thud—thud—thud!" goes a wonderful machine, which seems to work all by itself. It is very busy pumping, and its labour must be most important, for it goes on for years and years, not ceasing for a minute's rest. It is made in two halves, each of which is in two divisions, opening into one another by valves. Can you tell what it is?

5. Suppose we can shrink up much smaller than Alice did in Wonderland, and swim inside the hole in this brown thing from which a spurt of water has ceased to pour, and go down the passage. We are going against the stream, and, as we proceed, the passage narrows. There are turnings this way and that, and strange little jelly-like creatures live in nooks along the sides of them, and whip us back with their long arms, for they say we have come the wrong way, and the whole colony is wanting its dinner. So we drift out of the passage again. Every day we handle a similar dwelling-place of these small creatures. What do we call it?

6. There is something which can kill a man or a tree, cure some kinds of disease, boil a kettle, propel a vehicle, destroy a building, give us light, or carry messages for us. We can store it in our bodies, too, and it is even in the tiniest atoms. What is it?

7. One day, by mistake, a little grain of sand drifted inside the shell of a creature living at the bottom of the sea. No one likes to swallow grit, and this animal did not want the sand; but, being unable to get rid of it, it had to make a fluid to cover the hard, sharp grain of sand and prevent it from hurting. Then it made more and more coverings, until no one would have thought that this beautiful, shining, smooth thing was formerly a grain of sand. What is it?






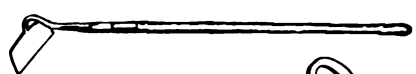


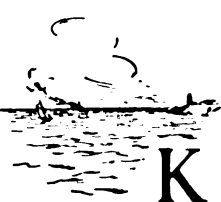



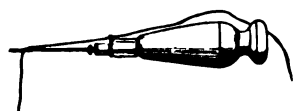




TWENTY-FIVE WAYS OF SAYING THE SAME THING

THE following line from Gray's *Elegy* is probably unique, in that it can be transposed in twenty-five different ways, and yet each time express practically the same thought:

The ploughman homeward plods his weary way
The weary ploughman plods his homeward way
The ploughman, weary, plods his homeward way
His homeward way the weary ploughman plods
His homeward way the ploughman, weary, plods
The weary ploughman homeward plods his way
The ploughman, weary, homeward plods his way
His way the weary ploughman homeward plods
His way the ploughman, weary, homeward plods
His way the ploughman homeward, weary, plods

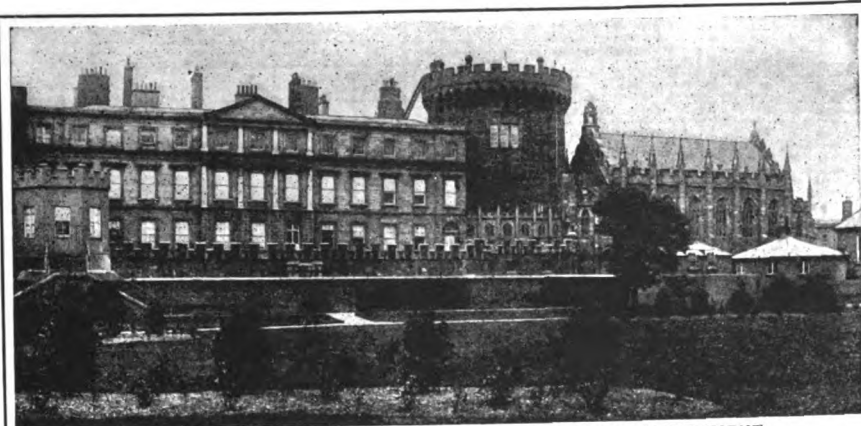
His homeward weary way the ploughman plods
Weary, the ploughman homeward plods his way
Weary, the ploughman plods his homeward way
Homeward his way the weary ploughman plods
Homeward his way the ploughman, weary, plods
Homeward his weary way the ploughman plods
The ploughman homeward, weary, plods his way
His weary way the ploughman homeward plods
His weary way homeward the ploughman plods
Homeward the ploughman plods his weary way
Homeward the weary ploughman plods his way
The ploughman, weary, his homeward way plods
The ploughman plods his weary homeward way
Weary, the ploughman his homeward way plods
Weary, his homeward way the ploughman plods

WHAT GAMES DO THESE PICTURES REPRESENT?

 <p>THE</p>  <p>1</p>	 <p>K</p> <p>2</p>
 <p>&</p>  <p>3</p>	 <p>C</p>  <p>4</p>
 <p>&</p>  <p>K</p> <p>5</p>	 <p>6</p> 
 <p>B</p>  <p>7</p>	  <p>8</p>
 <p>9</p>	 <p>10</p>

The names of the objects and scenes shown in these pictures, together with the letters given, spell correctly the names of ten games that boys and girls play. Examine the pictures and see how many of these names you can build up in the manner indicated. The answers are given in the next Things to Make and Things to Do.

THE NEXT THINGS TO MAKE AND DO BEGIN ON PAGE 552



DUBLIN CASTLE, THE OFFICIAL HOME OF THE IRISH GOVERNMENT

A MONTH IN IRELAND

THE COUNTRY AT THE END OF THE EARTH

CONTINUED FROM PAGE 5340.

WITH our travel armchairs drawn up to the table and maps and pictures spread out, we are enjoying the first stage of our holiday—anticipation—which in this case means looking things up and planning a tour. For years we have longed to go to Ireland, "the country at the end of the earth," as it is called in the oldest books. What shall we choose out of its beauties, north, south, east, and west, for our first visit, and by what route shall we cross the sea?

Shall we go directly or shall we go first to England? We can do either easily, but we finally decide that we shall go to London first and then go immediately to our own Ireland.

"Ireland!" shouts our motor-mad boy, opening the discussion. "We might travel right round the island, like Captain Deasy, 1,000 miles in a motor in six days, and get some idea of the country—"

"Especially of the hills, and the rain,

and, above all, of the rough roads," says father gruffly, in his beard.

"And then," continues the boy, "we could settle down at Belfast to see the docks and shipbuilding, and that electric travelling crane 180 feet high."

But this is not at all what the rest of us want, and we burst out excitedly:

"We must see Killarney!" "And think of the Giant's Causeway, his loom, organ, eyeglass!" "How foolish to go to Ireland and not see Dublin and the Celtic crosses, the round towers and the chimney-top rocks that the Spanish Armada sailors took for a castle!" "And that beautiful west coast! We simply must stand on the oldest mountains of Europe and watch the sun slowly setting."

Little by little we talk it all over, and, as our

plans take shape, we see that we must give up the idea of Belfast and the Giant's Causeway and Donegal in the north, and beautiful Wicklow in the east. At last anticipation passes into realisation as we find ourselves at



AN OLD CELTIC CROSS

Still standing at Monasterboice, in Ireland



THE SPLENDID HARBOUR OF KINGSTOWN, WHICH A CENTURY AGO WAS A MERE FISHING VILLAGE

half-past eight in the morning in the train from London to Holyhead, which we reach soon after two o'clock, feeling that going to Ireland shows us a great deal of England. Thence we take boat to Kingstown, the port of Dublin, and find about three hours of the rough sea quite enough. Another half-hour of train, and we are in "Dublin's fair city"; only nine hours from one capital to the other.

We reflect that it was by no means so easy and quick a journey when Nicholas Brakespeare, the only English Pope, made a present of Ireland—out of his stock of islands—to Henry II. After this—how we should hate being given away ourselves!—Dublin, and the long, narrow tract of country on each side of it and behind it, called the Pale, became a sort of foothold for the English, from which they could proceed to conquer the wild tribes and rebellious chiefs beyond. Naturally, the first thing we want to do

next morning is "to travel edgeways" on a real Irish car. We find it rather jolty, and it is difficult to hold on, so we willingly transfer ourselves to the cars, which run in all directions. With their help, we soon get a good idea of the city. Also, we have a fine view from the top of Nelson's Column, right away to the Bay of Dublin, on the east, and to the surrounding semicircle of mountains on the landward horizon.

We get another fine view of the city from the wide O'Connell Bridge over the River Liffey, where four street-cars can be seen abreast. It takes us some days to see the chief sights of Dublin. We start with the Science and Art Museum, which lies on the south side of the Liffey, between the College Park in which stands Trinity College—the University of Dublin—and St. Stephen's Green, a delightful pleasure ground. We are guided first to the Natural History Annexe, where the skeletons of



THE OLD IRISH PARLIAMENT HOUSE IN DUBLIN, WHICH IS NOW USED AS A BANK

the now extinct gigantic Irish deer fill us with wonder at their great strength of neck. In the main building we devote our whole time to the magnificent collection of Irish antiquities in the West Rooms.

But we must pass on to the fine examples of early Christian art, reminders of the preaching of the Gospel to Ireland in the fifth and sixth centuries. St. Patrick's Bell, St. Columba's Crozier, or Crook, the Cross of Cong, are among the chief treasures. The casts of the Celtic crosses set up in many parts of Ireland are also to be seen in this museum, and they bring to mind the labours of the early missionaries.

a Danish king of Dublin founding a priory church where Christ Church Cathedral now stands. This cathedral and St. Patrick's have lately been restored.

We are anxious to see the castle, where a Danish fortress once stood. It has been built and rebuilt through the centuries since the time of Henry II., and has been used for many purposes. It was long a citadel to defend the city in the English interests; and the courts of law have been held here; since the time of Elizabeth it has been the residence of the Viceroy, who governs as the representative of the sovereign.



SACKVILLE STREET, DUBLIN'S FINEST THOROUGHFARE, SHOWING THE O'CONNELL MONUMENT

In the library of Trinity College we see one of the most beautiful old books in the world, the copy of the Four Gospels, called the Book of Kells, with splendid paintings and illuminated letters, from the seventh century.

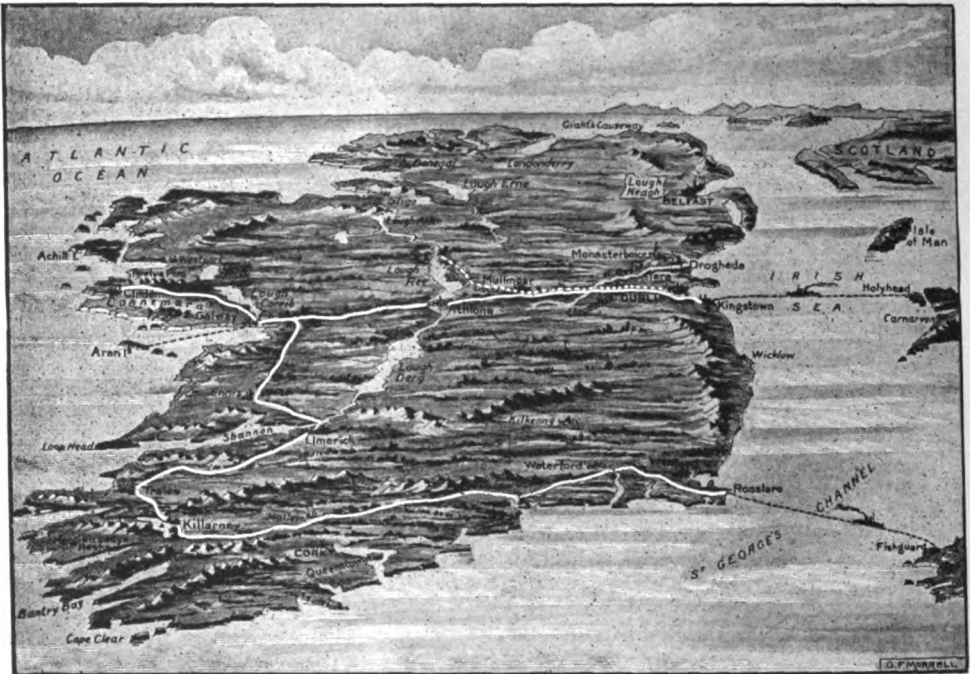
Also in the library we see the famous harp said to have belonged to the old Irish hero-king, Brian Boru, who fought the Danes so hard about the year 1000. These fierce Danes worked great havoc in the churches and monasteries of Ireland, as they did in Britain, where, in the north, Christianity had been preached by St. Columba and his successors. Eventually the milder faith conquered, and we find

Here are held grand balls and state ceremonies during the season, as in London. In the Presence Chamber are a throne and canopy, draped in crimson poplin. Poplin is the fine silk and worsted material which is made in Dublin.

We feel especial interest in the Bank of Dublin, for this very fine building was formerly the Irish Parliament House, where the Lords and Commons used to meet to make laws, before the Act of Union with Great Britain in 1801. Since then the Irish members and lords have had to go to Westminster. As we walk about the fine streets and squares of Dublin, and look at the

statues of many noble Irishmen, we recall what we know of the history of the island, and of the lives of her patriot sons. The great bronze statue of O'Connell brings to mind one of the greatest of these. With all the strength of his fine nature and his splendid eloquence, he worked to the death to obtain equal religious rights for his unhappy country. Would that we could have heard that strong, sweet voice! A generation later, we find it almost impossible to believe the terrible hardships that were inflicted on the Irish people, solely because their religious faith happened to be different from that of their rulers.

assembled from all parts of Ireland, in the last year of her long and useful life. Another excursion that we take before leaving Dublin is to Clondalkin, to see the nearest ancient round tower. There are many of these towers in Ireland. It is now thought that they were used as refuges from the Danes. This one at Clondalkin has walls three feet thick, and its door is fifteen feet from the ground, and the tower, which gets narrower to the top, is eighty-four feet high, and quite perfect. It is believed that it is a thousand years old. On the top is a pointed cap-roof. We would fain take still longer excursions to see the ruins and famous



A BIRDSEYE VIEW OF IRELAND, SHOWING THE ROUTE FOLLOWED AND THE PLACES VISITED

Father Mathew, the great temperance reformer, who could sway thousands to his will, Curran and Grattan, the fine speakers and patriots, are all held in loving remembrance in Dublin.

Part of the year the Viceroy lives in the Phoenix Park, one of the finest parks in the world, just outside Dublin. We reach it by tram, and greatly admire the beautiful avenues and woods, and the tame deer, the lake in the Zoological Gardens, and the statue of that great Irishman, the Duke of Wellington. It was down one of the great avenues of Phoenix Park that Queen Victoria slowly drove between dense masses of children,

crosses at Monasterboice; to see the weedy banks of the Boyne where was fought the battle that decided the fate of James II. and settled his son-in-law, William the Dutchman, on the English throne. Still more would we like to go to the little green hill of Tara, where there is not even a ruin to be seen of the Tara's halls which once re-echoed to the wild music of the Minstrel Boy. Tara is for ever famous in song and story as the real old capital of the Irish nation.

But we have planned to go westward, and so we take the Midland Great Western Railway right across the central plain of Ireland to Galway, a very dreary journey.

PEOPLE OF IRELAND AND THEIR HOMES



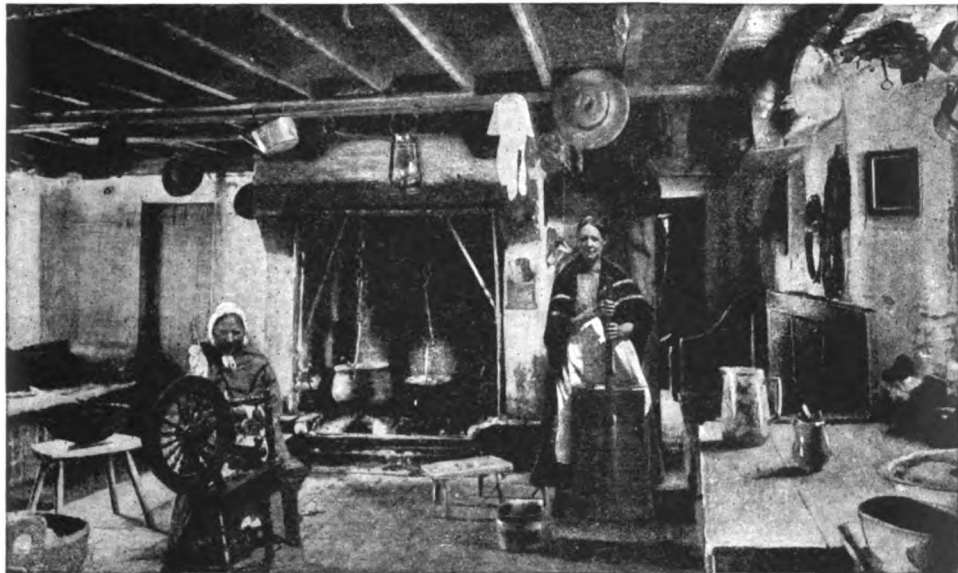
Here is a typical Irish peasant woman returning to her home after gathering wood.



In this picture we see an Irish family that has been evicted, or turned out of its home. The people are very poor, and are often unable to pay their rent.



The Irish live to a great age, and here we see a very old peasant woman.



In Ulster the people are much better off than in the other parts of Ireland. This picture shows us the inside of a cottage at Dervock, in County Antrim. It is particularly interesting, because it is said to have been the home of the ancestors of William McKinley, the President of the United States, who was assassinated at Buffalo in 1901.



This is a familiar scene in Ireland. The boy is leading a donkey, which is carrying a load of peat in two baskets.

The photographs on these pages are by W. Lawrence, Guy & Co., J. Valentine, the H. C. White Co., and the Great Western Railway.



Here we see an Irish farm. The buildings are small and rough, very different from the average of our farms.

In the Midlands of England we pass towns so close together that they seem to run into each other, all full of people and factories, and there are noise and bustle and smoke everywhere. In the Midlands of Ireland, so soon as the well-cultivated land round Dublin is passed, there seems nobody about, except a few peasants cutting and stacking peat from the dark, dreary-looking bogs, or cultivating the patches where the peat has been dug out. Here and there we pass little lakes and little rivers, and the Royal Canal, which stretches right across Ireland.

At Athlone, about the middle of Ireland, we cross the Shannon, the largest river in the United Kingdom. In our maps we have often drawn its course from its little beginnings north of Lough Allen, thinking, as we did so, of the little rills leaping down from the wet mountains to join it, of the chain of lakes into which the river broadens, of its imposing cascades, and of its final sweep into its splendid estuary with its islands and its bays, past the town of Limerick, into the wide Atlantic.

As we gaze from our carriage window over the brimming river and the fine hayfields on its banks, we wish we could follow it to the sea, through the lovely Lough Derg; but we are speeding on to Galway, and at the end of our journey we rejoice to feel ourselves at last in the long-desired west. The town of Galway interests us much, with its traces of Spanish buildings, reminders of the days when trade in Spanish wines was brisk and flourishing.

But the spell of the old Celts is upon us. We find ourselves ever looking out westward, as they did, to the dim blue islands of Aran, thirty miles away. There is a steamer that takes passengers as well as pigs and all that the islanders need, and in three hours we are there.

What a never-to-be-forgotten time we spend in fine sunshine on the chief of the islands! Was there ever such blue water, such grey rocks, with green ferns growing in the cracks? How wonderful it seems to us to see not only fragments of a castle built in this far-away spot, in Cromwell's time, but the foundations of a round tower belonging to early

Christian times and a cluster of churches whose "sweet bell" once sounded over the still air. It is now lost in the sand.

The strongest ones of our party are bent on going on to see the fort of Dun Aengus, whose walls, eighteen feet high and nearly as thick, have been standing on the edge of a cliff 300 feet above the sea since centuries before the days of St. Patrick. The rest of us are content to sit on the dry, soft sands and look from sea to sky, from the white gulls to the pale green fields, and think again and again of the rough times, of the early Christians and their buildings and their earnest faith, of the Danes and the English all plundering in their turn.

But even yet we have not satisfied our westward longing, and we do want to see Connemara, so our next move is to Clifden. We have often imagined the wild beauty of the lakes of Corrib and Mask, and the gaunt grandeur of the mountains between them and the sea,



THE HAPPY CHILDREN OF KILLARNEY

but we feel speechless when we see the Twelve Pins, or Bens, the bare rugged mountain masses in all their age and majesty before us. We could watch for hours the sun and shadows on the lakes and on the purple

heather. We spend many days, only wishing they were months, walking and climbing, and each evening, when it is fine, looking and looking at the sunsets—facing America.

We are able to realise, in the presence of this bareness and solitude, the awful days of the Irish famine, only about sixty years ago, when the potato crop failed, and the poor creatures who lived almost entirely upon that "root of poverty," many always hovering on the border of starvation, died in hundreds and thousands. Whole families died of hunger in Connemara. "All joy was darkened; the mirth of the land was gone."

It has been well said that the famine broke Ireland's heart. Many of the strongest and best that survived it felt so hopeless and despairing that they left their country for ever, seeking homes and careers across the Western Ocean.

Ireland has indeed had little of joy or mirth through many centuries. The English interfered but little till the times of the Tudors, keeping more or less to the

THE BEAUTIFUL LAKES OF KILLARNEY



This is one of the delightful lakes of Killarney. The rock peeping out of the water is called the Colleen Bawn.



Here we see the upper lake, with the picturesque road that runs by the side of the blue and shining waters.



* There are three lakes at Killarney, and the upper lake, shown in this picture, is the most beautiful, though it is the smallest. The margins, with the wooded hills beyond, have been described as "the most magnificent shore in the world."



From this picture we get some idea of the luxurious growth of the wild flowers and other plants at Killarney.



The three lakes are joined to one another, and here we see the meeting of the waters of the middle and lower lakes

* a notograph copyright by H. C. White Co.

Pale round Dublin. Unhappily, when England began to carry the conquest farther, it was at a time when she had just turned Protestant, and bitter religious feelings were stirred up and were fanned, to England's indignation, by Spain and the Pope. All along, the position has been like that of two people of different



TARA HILL, WHERE THE FAMOUS HALL OF IRISH KINGS STOOD

natures, who cannot or will not understand each other. England has to be ashamed of terrible cruelties in its efforts to subdue the Irish, particularly in the time of Cromwell, and the Irish have paid these cruelties back when they could. So it has gone on in a miserable circle—tyranny and persecution under the name of religion, met by rebellions and risings, followed by cruelties that remind us of the old savage days of the famous Assyrian kings.

Of late years troubles have continued in Ireland because so many landlords have cared nothing for the people who lived and toiled on their estates, and the people, in poor districts, have been either unwilling or unable to pay the rents of their miserable fields and cabins. It makes us sad to see the cabins which shelter the very poor in Ireland, pigs and chickens all living with the family. The huts have mud floors, often no chimney, and scarcely any windows or comforts of any kind. How many ruined homes we see, too, as we travel about; the hearths are cold, the families gone.

Before the Hunger, as the famine is sometimes called, families had begun to cross the sea to America, to share in its

good wages and prosperity, and noble help they sent to the Old Country in its great distress. Emigration increased much more after that terrible time. The sadness of the departure of an emigrant ship haunts us,

as do the echoing words of the well-known plaintive "Lament of the Irish Emigrant—I'm sitting on the Stile, Mary."



INSIDE ST. PATRICK'S CATHEDRAL, DUBLIN

We have many days in our holiday in which we can stay indoors to read up the story of Ireland. Wet days are to be expected on the Emerald Isle—which, however, is brown as much as green. Sometimes we tramp about in thick boots and waterproofs, and much enjoy the fair blinks when they come, and the most wonderful rainbows we have ever seen. Other days, a book and a peat fire are all that heart can desire, except a chat with the people about, when we have a chance. In spite of all their troubles, the Irish are famous for taking amusing and bright views of life.



A VIEW IN PHOENIX PARK, DUBLIN

We find the western accent very different from that of Dublin, and are delighted to hear some real old Irish, and we only wish we could read and understand it. Three weeks of our holiday are

gone, and we still say we must see Killarney; so we take the train southward, past Limerick—where beautiful

lace is still made—and past Tralee, to Killarney Station. We are most fortunate in having a whole week of fine weather, and each day is taken up with excursions by brake and by car, by boat on the three lovely lakes, on foot, climbing the hills for grand views, or to the best points to see waterfalls. Each fresh beauty that we

see we think the most wonderful of all, whether it be the fine ruins—all so full of interesting stories—or the islands covered with glorious trees and shrubs and wild flowers, or the leaping cascades, or the wild gorges between the mountains, or the ever-varying colours of the steep slopes. How delightful, too, are the soft breezes, and the wonderful misty light over all! We feel that we can now understand the Irish poet, Thomas Moore, writing of the fairy Isle of Innisfallen. It is all fairyland.

We think as we look again at the map of this south-western part of Ireland that it would be delightful to spend a whole summer holiday in it, to linger among the lakes, to climb the purple mountains, and explore the long, narrow inlets of the ragged coast. Their water is purple-blue, running far into the heart of the mountains, which are the highest in Ireland. And now for home, direct across the south of Ireland to Rosslare, in Wexford, which takes us five hours. We are sorry to have to

miss Cork, and especially its harbour, where Drake managed to hide himself so cleverly from the Spaniards, and which, like Bantry Bay, could hold the whole British Navy. We should have liked, too, to perform the gymnastic feat of kissing the Blarney Stone, so as to secure, as the saying goes, a soft, per-

suasive tongue. We get a good view of the country which produces so much of the butter and other good food sent away from Cork and the rest of the southern ports. Our journey from Rosslare to Fishguard, across St. George's Channel, takes about three hours, and the strong sea breezes refresh us for the rest of our railway journey. Beautiful Killarney in the early morning, and London in the evening! And all our meals in comfort in the train.

The journey is so easy that we wonder why more people do not make it every year. Certainly they can find no more beautiful country anywhere in the world. Then, too, the people are so interesting. The Irish have a reputa-

tion for their wit and their politeness and we must agree that it is well deserved. How much interested the people were when they found that we were from America! It seemed that almost every

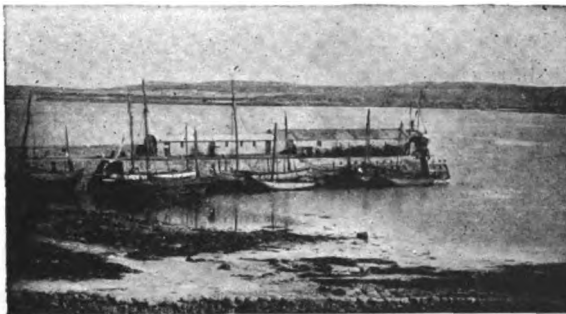
one we met had a relative in America. It made us wonder how the island ever could have held them all.



ATHLONE AND THE RIVER SHANNON



THE ROUND TOWER OF CLONDALKIN



ARAN ISLAND, WHICH LIES OFF GALWAY BAY

MRS. HEMANS, THE CHILDREN'S POET

YOUNG people may rightly claim Mrs. Hemans as their very own poet. She is not one of the greatest poets, but she is sure of immortality; her poems will be spoken and sung, we all believe, as long as the English language endures—and why?

Because the children of all ages love her and her poetry.

In her day, she was one of the most popular poets in the world, but her popularity waned, as it was bound to wane, because her work was not strong and bold and vigorous enough to hold the admiration of men permanently.

Scott explained the reason; to him it seemed, he said, that her poetry, much as he admired it, contained too many flowers and not enough fruit. It was pretty, musical, correct, abounding in tenderness and high religious thought, but it lacked depth and strength. Men tired of it as they tire of a sweet little song, as children tire of sweets and confectionery.

But the children have not tired of Mrs. Hemans. To them she remains a perfect heroine, and a sweet, beloved singer. The children's books contain many of her poems, as they always should, and it is because the children love her and her poems that her immortality is assured. It is right that children should love her and her work, for she dearly loved children. Had she not so loved children she would have been a greater poet. She poured out her poems that she might have money with which to feed and clothe and educate her five little boys, and her work killed her. Had she written less, she would have been able to write better. Still, as it is, she has left us songs and poems which the children will for ever keep alive.

Felicia Dorothea Hemans was born at Liverpool on September 25, 1793. Her father, George Browne, was at one time a prosperous merchant, but misfortune overtook him, and he had to give up business and go to live at Gwrych, in North Wales. There Felicia grew up with her six brothers and sisters in surroundings

of natural beauty, which inspired her with the poetic passion. She early began to write verse, and her parents were so unwise as to publish a little volume of the poems which she had written before she was fourteen. The work was badly

treated by the critics, but Shelley, the great poet, saw the poems, and, hearing that their young author was a girl of great beauty—as indeed she was—he desired her to correspond with him. This Felicia's parents

would not permit, and the girl gave her thoughts to better poetry, publishing the same year, 1808, poems of far higher level.

She read a great deal, and the wars of the period, in which two of her brothers were gallantly fighting, filled her young soul with patriotic ardour. Hence, when a dashing young Irish captain, named Hemans, came along to the quiet little Gwrych, what must Felicia Browne do but fall in love with him. He went off to the wars with her brothers, and to her he seemed, oh, such a hero! In 1812 Captain Hemans returned and married the beautiful young poet, who was then only nineteen years of age. They had five little sons, and then, in 1818, the captain went off to Italy, leaving his girl-bride with five baby boys to maintain. She never saw her husband again, and we do not know what became of him. But there she was, with these five small boys to maintain, and all their support had to come from her busy pen.

The brave young mother did not flinch from her task. She set herself to support her little family on the money that she earned by her poetry. She won a £50 prize for the best poem on the meeting of Bruce and Wallace, and three years later she gained a prize for the best poem on the subject of Dartmoor. She worked very hard, writing books and poems and articles for papers and magazines. Her fame became widespread throughout Great Britain and in America. Her fame in America was helped very largely, of course, by her poem on the landing in America of the courageous men who were



THE WELSH HOME OF MRS. HEMANS, NEAR ST. ASAPH

the first to leave England to worship God after their own consciences. We all know how that stirring poem begins :

The breaking waves dashed high
On a stern and rock-bound coast.

It is a fine, impressive poem, and multitudes of people in America used to assemble to sing it on the very spot at which the Pilgrim Fathers left their ship and first set foot on American soil. But Mrs. Hemans never saw the spot, and did not know what the scenery was like. One day an American admirer of the poem called to see her in her home near Windermere, and told her how highly the poem was regarded in America. She asked him to describe the exact scene of the landing. He had to confess that the coast is not "stern and rock-bound," but flat and free from danger. She was so grieved to think that her poem was guilty of describing the scene wrongly that she burst into tears of shame, and could not be comforted.

We have traced her to Lake Windermere. It was to a pretty little cottage overlooking the lake that she retired after leaving Liverpool, whither she had gone from Wales. She went there for peace and quiet, and to work amid the beauties of the neighbourhood to which Wordsworth had introduced her. But peace and quiet were not for her. Crowds of vulgar tourists found her out, and haunted her house, and, by begging for her autograph and other keepsakes, made her life a misery. It was here that she found that the strain of maintaining her family was breaking her health. She was too proud to tell her friends how hard and how killing the struggle was, and she worked on until her constitution was ruined. She knew that she

was killing herself by overwork ; she knew also that she would never be able to give herself time and peace of mind to write the great poem upon which she desired that her fame in after years might rest. She went with her children to Dublin, to be near a beloved brother and his wife,

but still the struggle for the children's welfare had to continue. She had many sorrows. Her husband had disappeared, her parents were dead, and death claimed several of her brothers and sisters, as she tells us in that mournful poem, "The Graves of a Household." But to the very end she toiled on, cheerfully, ungrudgingly, writing, in order to live, poems upon a variety of subjects, which the children of the world have since refused to let die. What child has not felt his heart beat and his eyes moisten as he has recited "The Child's First Grief"?

O call my brother back to me,
I cannot play alone !
The summer comes with flower and bee—
Where is my brother gone ?

A still more famous poem of hers is "Casabianca," known and recited throughout the English-speaking world. Two other poems, "The Better Land" and "The Diver," have been set to music and sung on every concert platform in the British Empire, and in every home which has a pianoforte.

She loved her home very dearly, the home which she strove so bravely to keep for her little ones, and we can tell that it is from her heart that there came the world-famous poem, "The Stately Homes of England." Another of her compositions which every child knows is, "He Never Smiled Again." It is safe to say that twenty or thirty of Felicia Hemans' poems will be found scattered

through the best and most popular books of recitations of to-day. That is a great thing to be able to state of the work of a woman like Mrs. Hemans. For over seventy years the children of the world, and the children alone, have kept this good mother's memory green.



THE HOME OF MRS. HEMANS BY LAKE WINDERMERE
From a photograph by G. P. Abraham

She was only forty-one when she died. She caught cold while sitting in a Dublin garden, and she was so weak from her heavy work that she wasted away and died—May 16, 1835—in the very prime of life, while she was still capable of finer work than anything she had done.

Felicia Hemans was buried in a pretty Dublin church, and her friends chose for her epitaph some beautiful lines which she herself had written among her poems. They are these:

Calm on the bosom of thy God,
Fair spirit! rest thee now!
Even while with us thy foot-
steps trod,
His seal was on thy brow.
Dust to its narrow house be-
neath!
Soul to its place on high!
They that have seen thy look in
death,
No more may fear to die.

Seldom has a poet's epitaph been more fittingly written by that poet's own hand. Few people knew, during her life, how hard was the battle which the beautiful poet had to fight. For she was beautiful, though none of the painters or sculptors of her time seemed able to do her justice. People fancied her happy



MRS. HEMANS

and care-free as some bright, singing bird. That was because she did not speak of her sorrows, and devoted all her energies to making others happy, instead of letting her mind dwell on her own misfortunes. When she went to Ireland she met a brother and sister-in-law whom she had not seen for five years. They were alarmed to see how disease and worry had left their marks upon her fair face. But the poetess blithely entertained them with gay and brilliant conversation, as though she were the happiest woman on earth. So she lived her days, happy in the knowledge that by her own suffering she had made the world a little brighter and better for the beloved sons for whom she toiled. Her memory will ever remain green with those who love the brave.

WILLIAM POSTEL, THE BOY WHO MEANT IT

A LITTLE French boy named William Postel lost his father and mother during the plague in France when he was only eight years of age. Left quite destitute, the brave child tramped to another village, and there earned his living as—what do you think?—as a schoolmaster! Yes, at eight years of age, William Postel supported himself by teaching others to read and write, and thus he lived for six years.

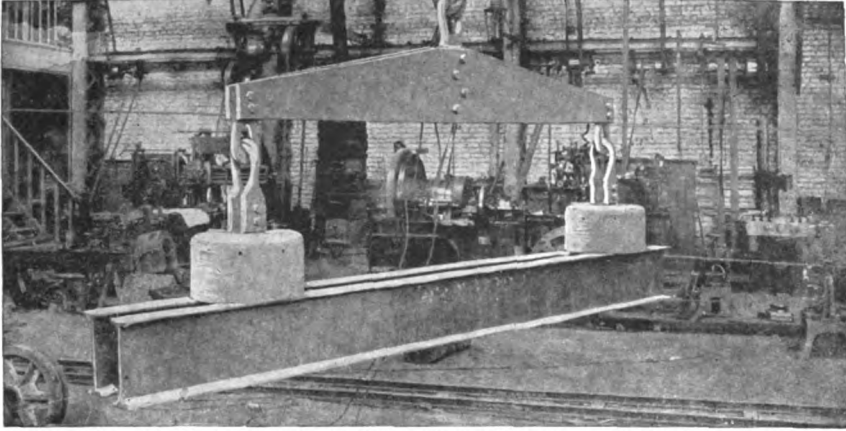
All the time he was teaching peasants their letters, this boy, who longed above everything else to be an author, was saving his money, so that he might go to Paris. He was fourteen years of age when he set out for the great capital of France. When he arrived in the midst of the crowded streets, he was so struck by the hard, cruel, and avaricious faces of the citizens that he felt inclined to run away and return to his happy, simple peasants in the country.

But he thought, "How people will laugh at me if I return!" and he continued his way in search of a lodging. He found a garret, and began to work hard at his books. Every day he acquired more learning, but every day his store of money dwindled. Very often he was hungry and cold. One morning, when his condition was really desperate, he

woke with an idea in his head as to how he might earn money. Delighted with the idea, and feeling that now he was safe for at least another week, William jumped out of bed, and discovered with horror that a thief had visited his garret in the night, and stolen his clothes and the last of his money.

Overwhelmed by despair, his heart breaking with misery, the poor boy went to the window, determined to throw himself out. But as he went the thought came: "To be deserted by man is not to be deserted by God." He returned to his wretched bed, flung himself upon it, and burst into tears.

An illness seized him as he lay there, and he was taken to a hospital, where he lay helpless and miserable for two whole years. When he was well enough to walk, he left Paris, a beggar, put himself to work in the fields, saved money till he could buy himself a suit of decent clothes, and then returned to Paris to become a servitor in one of the colleges of the university. Here he gained universal knowledge, and the king, hearing how he had sought learning in spite of poverty and misfortune, became his patron, and Postel lived to be a celebrated writer, and a great Professor of Mathematics and Languages.



A PAIR OF MAGNETS LIFTING STEEL GIRDERS THAT WEIGH SEVERAL TONS

THE WONDERFUL UNSEEN WORKER

A MIGHTY POWER THAT A CHILD CAN CONTROL

CONTINUED FROM PAGE 5410.

MOST of us know something about magnets. The earth itself is one vast magnet. The magnetic force of the earth, passing, age upon age, through certain ores, has magnetised these and made them into natural magnets, which we call the loadstone. All this we know already, and we know also that we ourselves can transfer this magnetic power of the loadstone to iron and steel, and make magnets of these. Steel which has been so treated remains magnetised, so we call it a permanent magnet.

A magnet of this type is one of our good servants which do much work for nothing. It is a permanent magnet, or magnetised needle, which makes the mariner's compass, to guide our brave sailors about the world of waters.

People of old time knew something of the wonders of the loadstone, the natural magnet, and attributed to it powers more magical than those which writers of stories bestow upon the fairies. Savages generally worship anything which they fear or cannot understand; people in England used to do almost as foolish things, and especially was this so in regard to the loadstone. The amusing thing is that we, in these happier days, have

magnets which, while they cannot perform the marvellous feats supposed to be performed of old by the loadstone, do really much more wonderful things than worshippers of the loadstone ever dreamed of. Of course, it is the magnet known as the electro-magnet of which we are now speaking.

The secret of its immense usefulness is that one moment it is a magnet of enormous strength, and the next it is simply a piece of unmagnetised iron. The permanent magnet is too faithful; like the lichen on a rock, it must go on clinging to that which it holds. So that, although it will pick up a needle or a cannon-ball, it will not put either down, but will go on holding it until its magnetism grows faint, and the weight of its burden becomes at last too heavy. It is like a badly-trained dog which will run and pick up a thing for us, but will not give it to us when we desire to have the article.

The electro-magnet is a giant which a little child can control and direct. We all know how it is made. Big or little, and no matter what the pattern, the electro-magnet is always the same in principle. It is just a piece of soft iron wrapped about with wire. The wire is insulated, of

course—that is to say, it is all carefully wrapped in silk or gutta-percha, or some other substance, so that when the electric current is turned on the wire shall not let that current escape. There it is, then, a core of soft iron—soft iron because this does not retain its magnetism—wrapped about with wire. It is still and lifeless until we want it. Suppose now that we do want it. Let us ask a little girl to set the mysterious helper to work.

She touches a switch, and turns on a current of electricity, which comes to the magnet by way of wires. These wires are connected with a dynamo which is generating electricity, it may be miles away. The moment the little girl turns on the switch the current flies through the wire in which the soft iron is wrapped, and, hey, presto! our soft iron has become a magnet of tremendous power. The electric current magnetises the iron, and there is no natural magnet on earth so strong as that which our little girl places at our disposal.

What shall we do with it, now that we have got it? Here are tons and tons of pig-iron lying in a yard, waiting to be lifted into the railway trains which are to carry it from one end of the land to the other. It would take men days to do the work. We can do it as easily as we play a game. The magnet is fixed to a chain which is attached to a travelling crane. The magnet is lowered until it comes near the iron. Instantly these massive "pigs" of metal leap up as if they had awakened from sleep, and cling to the magnet as to their dearest friend.

The little girl gives a signal, and the engine-man makes the crane travel along its little overhead railway, carrying the magnet with its load of iron "pigs" with it. The burden is held over a car. The little girl touches the electric switch again, shuts off the current, and makes the magnet instantly cease to be a magnet, with the result that the pig-iron is no longer held up, but drops into its place in the car. Then the magnet travels back, is remagnetised, and brings back more pigs. In a very short time all the pig-iron is loaded into trucks, and the train is ready to start with its freight.

In the same place we may have other great weights of metal to be raised and carried. Our little girl can manage them all by her switch. The lifting power is fixed by the size and nature

of the magnet used and the strength of the electric current supplied. Guns, cannon-balls, metal beams, heavy machinery, and all manner of things can be lifted in this way, carefully lowered, and then released.

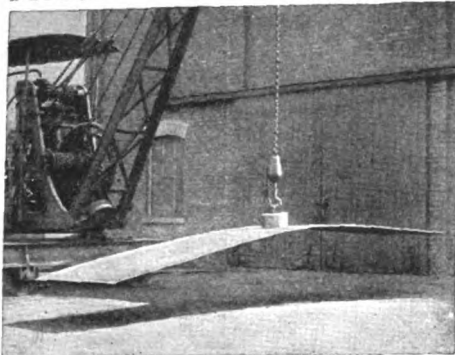
The child whom we imagine as controlling the electro-magnet is performing before our eyes a miracle far more wonderful than any animated by our forefathers, who bowed down before the loadstone. She has before her common iron and common wire, dead, seemingly useless material. She touches the switch, and puts into that wire and iron a something which seems to render the iron alive, as with a mighty power.

Our magnet can lift and carry and place things in position for us, releasing them immediately we wish. But it can also act as a ready and rapid destroyer. When machinery has served its purpose, it has to be broken up, "scrapped," as we say, so that the metal may go to the furnace and be converted into something new and beautiful. But it is very hard work to break it up. Our young friend with her electro-magnet comes again to our aid. She touches the switch, turns on the current, and makes the magnet pick up a mass of metal. By the help of the crane she raises it to a height, then switches off the current, and lets the metal fall. Crash!—the machinery is broken into fragments ready for the furnace.

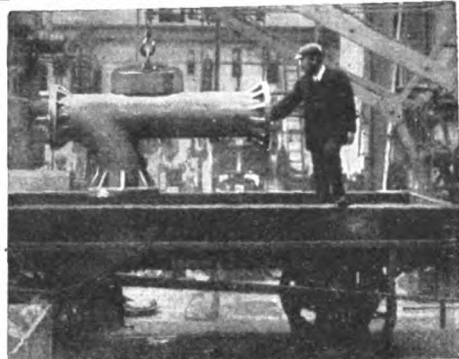
During the progress of this work an unfortunate man gets a sharp fragment of metal driven into his flesh. Our young friend comforts him, and leads him away to another magnet. She places the point of this at the entrance to the wound, and turns on a gentle current of electricity. The iron becomes magnetised, and in an instant we find that the piece of metal has been drawn out of the wound by the magnet.

Those are some of the ways in which a child can command the services of a magnet which, by her own act, she has made powerful through the aid of the wonderful unseen helper, electricity. There are a myriad other ways, too, in which the electro-magnet works for us. Every journey performed by electric train or trolley or motor, every message sent by telegraph or telephone, every electric bell that is rung, is worked by means of an electro-magnet, one of the most wonderful helpers that man has summoned to the service of the world.

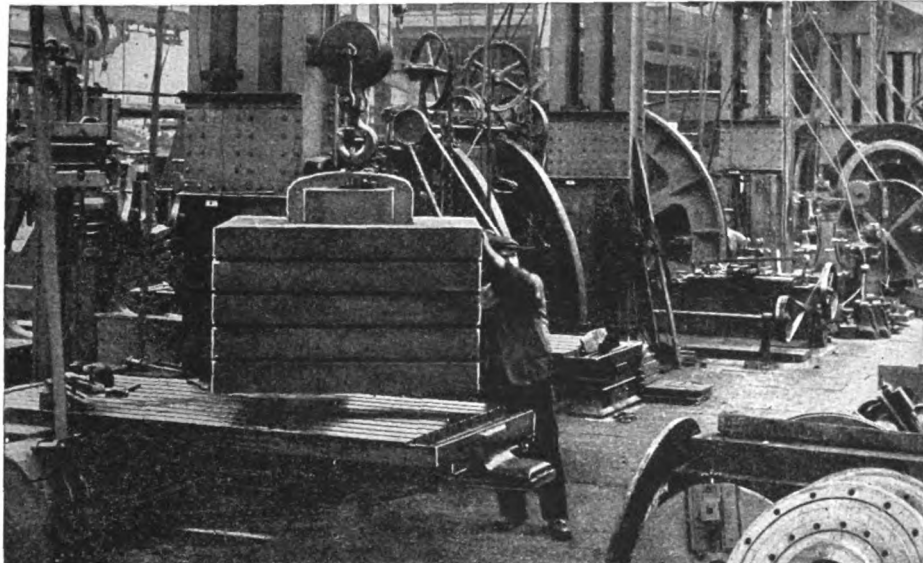
MAGNETS THAT DO THE WORK OF FIFTY MEN



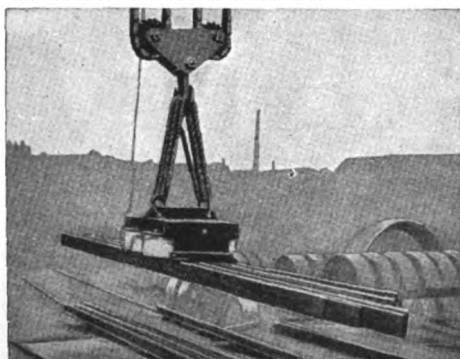
More and more of the lifting work in modern engineering works is done by powerful electro magnets. They are particularly useful for lifting long, thin plates of steel, which were formerly difficult to handle by means of ordinary chains and pulleys owing to their flexibility.



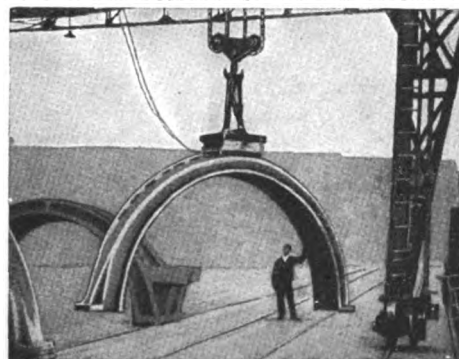
The most massive parts of machinery, many of which are very inconvenient to move because of their awkward shape, are easily raised by an electro-magnet and conveyed by a travelling crane to any place desired. The magnet effects a great saving in time and labour.



The power of the magnet can be so regulated by the strength of the electric current that a number of pieces of iron and steel can be raised at one time, as seen in this picture, and then dropped one by one as may be required.

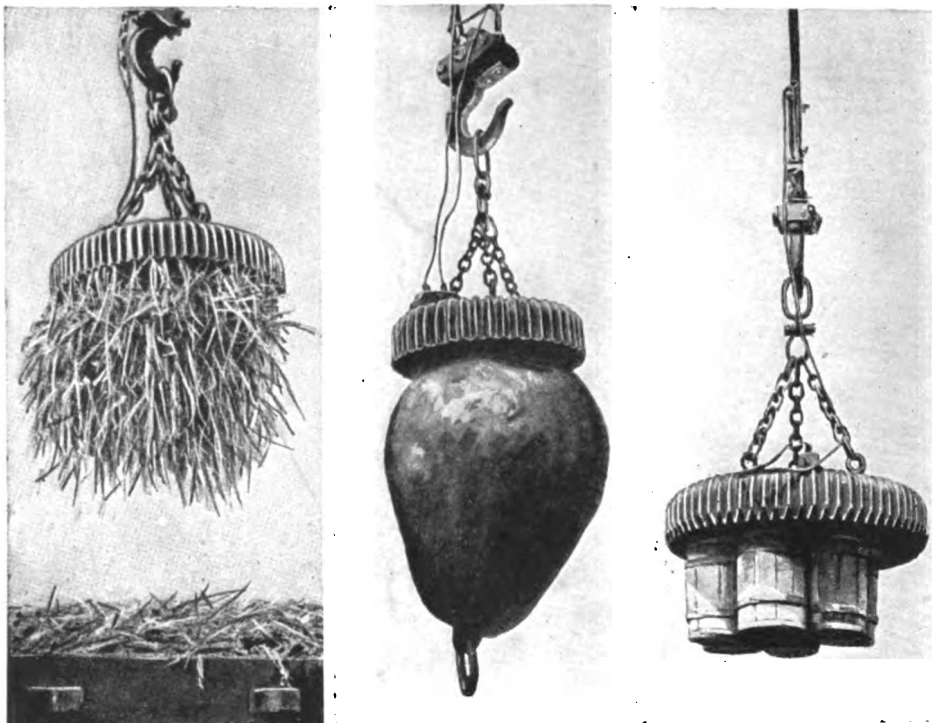


Girders had formerly to be raised separately, and there were many accidents among the men who handled them, but now a number of girders can be lifted at one time quite safely. Some magnets do the work of fifty men.

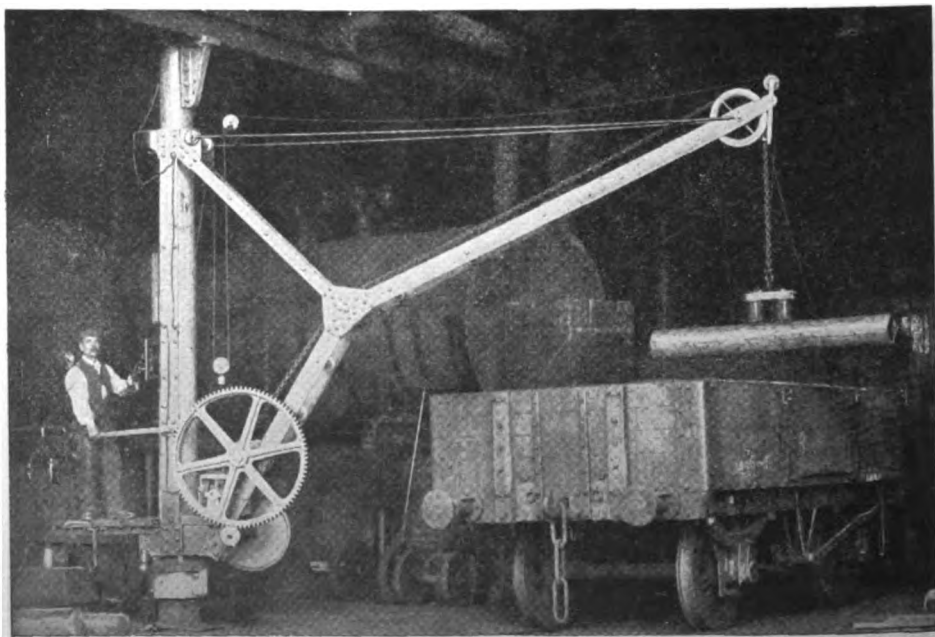


Great steel arches like those shown in the picture, weighing several tons each, were very difficult to move by means of slings and hooks, but now the electro-magnet handles them quite as easily as it does straight bars.

HOW THE GIANT MAGNETS ARE USED

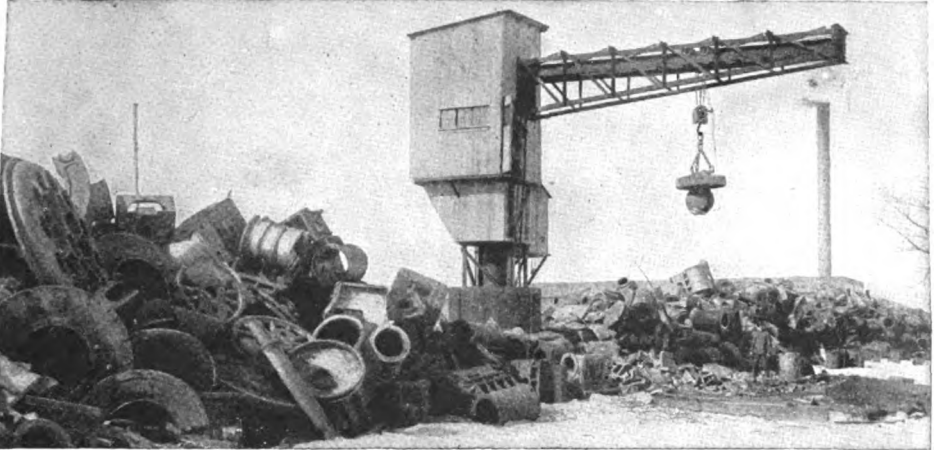


Here are some of the ways in which the mighty electro-magnets, the most powerful of which will lift more than twenty tons, are used. In the left-hand picture a great mass of scrap steel is being raised, and in the right-hand picture six barrels of nails are supported by the magnet. In the centre the magnet is holding a huge mass of steel weighing over 22 tons, which is called a "skull-cracker," and is used to smash up old iron, as shown on page 637.



In this picture heavy iron cylinders are being loaded into railway trucks by means of an electro-magnet suspended to a crane. As soon as the cylinder is hanging above the truck, the current is shut off, the magnetism ceases, and the iron falls. These magnets are very cheap considering the work they do; the most powerful cost only a few hundred dollars. They are particularly useful in handling newly-made pig-iron that is red hot.

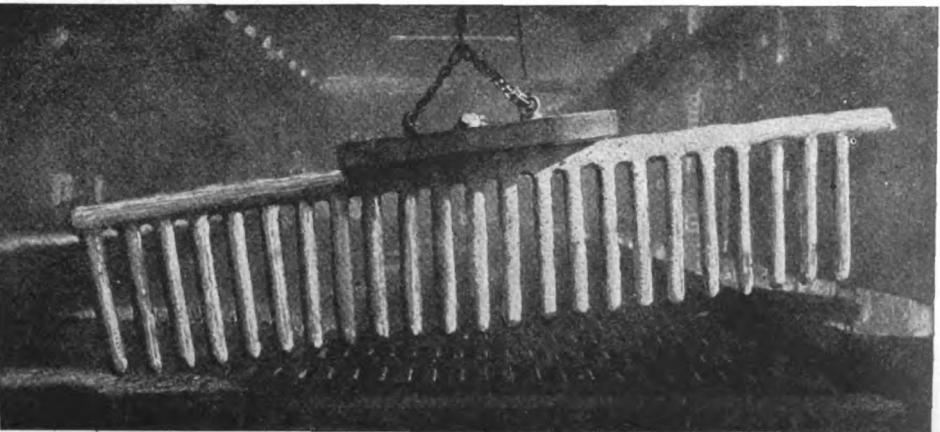
THE BIGGEST MAGNET IN THE WORLD AT WORK



This picture shows how old machinery is smashed up with the help of the biggest lifting magnet in the world. A skull-cracker, weighing 22 tons, is raised by the magnet and is then allowed to fall with a crash on the old iron. The magnet is lowered, and once more raises the skull-cracker, which falls as soon as the current is taken off.

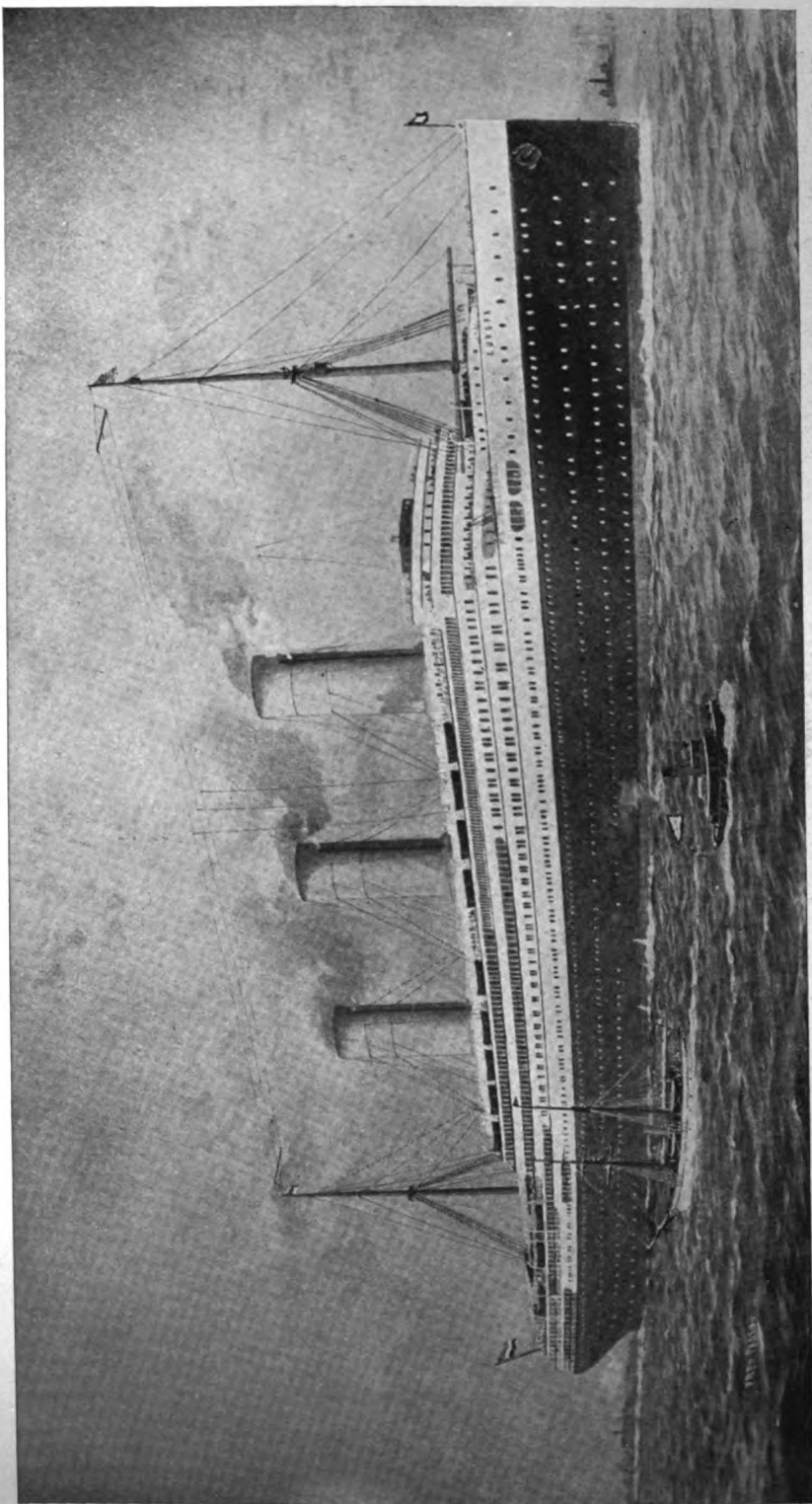


A comparatively small magnet will lift a ton of steel with three men standing upon it, as shown in the left-hand picture. On the right, ingots of iron are being moved by means of a great electro-magnet attached to a travelling crane.



Here we see a powerful magnet lifting several tons of pig-iron as though the iron was a feather. Such a magnet will move a thousand tons of iron in a day. This iron has cooled after being run into channels, as described on page 61. Magnets are used in shipbuilding for lifting the steel plates into position and holding them while they are riveted.

THE NEXT STORY OF FAMILIAR THINGS BEGINS ON PAGE 5537.



You were shown two pictures of a ship in Volume I, which you were told was the largest in the world. The statement was true then, but here is a picture of a ship now building for the Hamburg-American Line which will surpass it. It is 900 feet long, 97 feet broad and can carry 50,000 tons. There are accommodations for 4,250 passengers and a crew of 1,000 will be required to look after the ship and take care of passengers, freight and mails. It is expected that a speed of twenty-two and one half knots an hour will be reached. Such a ship is really a great floating hotel.



WOLF CUBS BEING NURSED AT THE ZOO BY A FINE RETRIEVER DOG

THE LIFE OF YOUNG ANIMALS

WE are all pretenders — men, women, children, and animals. We dislike our work or our lessons only because they *are* work or lessons. The paid gardener wearies of gardening because he is paid to do it as work, but with what joy those of us whose duty lies in other directions take up spade and fork and hoe, and do our share towards making the garden beautiful! Gardening is play to us, because we are not compelled to do it. How we love a game at tennis or croquet on a broiling summer's day, yet how badly we should feel ourselves treated if we *had*, as a matter of duty, to play tennis or croquet in hot weather! The things which we do for fun are just as hard as those which we have to do as duty, but because we may please ourselves as to whether we do them or not, we enjoy them.

It would seem that Nature knows this weakness in our character just as well as we ourselves know it, for she teaches the humbler members of her family to act as we act. The babyhood of many animals is much like our own. Baby animals have to be taught by their parents as we have, but their training is given at play.

Let us turn back for a moment to page 5324, and read again the story of the man caught by a tigress. We see that the great creature does not then and there eat him; she carries him to the jungle and calls her two babies to her, calms the fears which the sight of a man arouses, and does all she can to induce them to make a plaything of the unfortunate victim. It is a sort



YOUNG WILD GOATS
One is feeding from a bottle

of kindergarten lesson for the baby tigers; they are taught a lesson in play. Now, that is the plan upon which many animals are taught when young. The very things which it will be necessary for them to do in after life in order to live, they learn from their parents in games. The wise parents are serious enough, no doubt, in their intentions; but the little ones cannot be serious, they take their lessons as if they were part of some game. They are only in real earnest when danger threatens, and they run to their parents for protection.

Grave naturalists who have studied wild life in scenes far removed from the paths of men have asked themselves the question, "Are animals happy?" and have come to the conclusion that they cannot be. Fear of

starvation and fear of death by flesh-eating animals must, they think, be ever present in the minds of vegetable-feeding animals and make their lives miserable. We may comfort ourselves with the belief, however, that this unhappiness, even if it really exists in the adult animals, does not affect the young ones. To them life must seem happy enough. They are taught to avoid dangers, but their lessons are taken in their play-time, and the art of concealing themselves cannot seem a much more serious matter



YOUNG TIGER CUBS PLAYING

to them than is a game of hide-and-seek to us. Nearly all animals are quite helpless when born. The fierce creatures which, when they grow up, destroy other animals, are as feeble as newly hatched pigeons, and need as much attention as one of our own babies. As soon as the teeth of young lions or tigers begin to grow and they are able to bite, their parents bring them the bodies of animals upon which they begin their task of feeding themselves.

They are taught to "worry" the flesh; they gambol and play with it, and bite it in fun, as a puppy will bite the slippered toe stuck out by ourselves to tease him. They are encouraged to do things which sharpen their teeth and claws and make them bodily strong. Wolves and foxes are taught to hunt.

There are many stories of children having been carried off and brought up by wolves. Nobody can say whether these stories are true, but as so many such stories exist, men have tried to account for them, and they think that, if such a thing ever has happened, it has come about in this way. A mother or father wolf, seeing a baby child left unguarded, has snatched it up and carried it home to its little ones. The mother wolf has not been hungry at the time, and the little ones required only milk for their meal, which their mother supplied. The child has therefore dropped down

among the baby wolves, and, unconscious of its danger, has struggled to the side of the mother wolf and managed to get itself fed by her in the same way as the baby wolves. Then, food being plentiful in the neighbourhood, there has been

no need for the mother or father wolf to eat the child. The latter has become the plaything of the baby wolves, who have come to look upon it as one of themselves, while the mother wolf grows used to regarding it in the same way. In that manner the child

grows up as much like a wolf as a child can be. Lord Wolseley says that when he was in India he heard many stories of children being stolen and reared by wolves, and he believes that it is a fact that such a thing has happened. If so, he says, then the legend of Romulus and Remus, the founders of Rome, having been nursed by a wolf may, after all, be true.

Italians do not doubt the story, and in Rome a caged wolf is always kept in state to commemorate the event. The editor of this book was very much scared when, late one night, as he wandered through Rome, he stumbled by accident on the lair of the wolf kept by the



MOTHER AND BABY KANGAROO

Romans to-day as the descendant of the wolf which is said to have nurtured the founders of the Eternal City. The young of flesh-eating animals are taught, when at play, to practise the arts which may one day be necessary to enable them to grapple with their prey. Notice the frolics of two kittens. They crouch, and creep, and spring upon one another, and ply teeth and claws in their happy sport. But picture those same kittens a few months older; fancy the bites and scratches

they now give as being given in earnest, and we see that here in play are the very movements which, in time to come, they will give in earnest, when some living animal has to be captured for food. The animals which do not eat others are taught

when young to avoid other animals and the dangers which may spring from them.

Let us watch a mare and her foal in a field. The staid and sedate adult animal has no desire to go frisking about the pasture, but suddenly, with a low whinny to her baby, she will fling her head high, kick up her heels, and gallop away, rearing and plunging and swerving as she goes with her baby bounding like a thing of india-rubber after her. It is an old instinct which is driving the mother to act in this way. She comes of a species which long ago was hunted by wild men and by wild animals.

In those days the life of a horse depended upon its power to gallop swiftly and to start aside from hidden danger. And that is what the mother is teaching the foal to do to-day as they both course so gaily and joyously over the meadow.

As we all know, the pace of a coach depends upon the speed of the slowest horse in the team. The same rule applies to the speed at which wild animals, moving in troops or herds, can travel. The animals which are full grown may be able to gallop like the wind, but the young ones cannot. Therefore, they must have some means of escaping animals who prey upon them, or their species would be exterminated. So the fawn is taught a really clever ruse. Should an

enemy approach, the fawn darts off like a flash to a point seventy or eighty yards or more away, and there drops down, and lies close to the ground, with its long neck outstretched. The mother, seeing the young one hiding, then bursts away in the opposite direction. She will even limp, pretending to be lame, so that the animal which is seeking food will follow her in the expectation of easily overtaking her.

But once she has lured the enemy well away from her little one, she bounds swiftly beyond its reach, and then, all

in good time, when the danger is past, she can return and find her fawn. The English hares are taught to do something of the same sort. At the least sign of danger they crouch flat upon the ground, and so much is their fur like the ground

upon which they lie that an eye much better than that of a townsman is required to detect them. A young rabbit learns to sprawl flat when threatened, and the funny thing is that tame rabbits will do exactly the same thing, though their colour may be of no use for hiding them where they lie. It is easy for animals like these to crouch and hide, but it is a different matter for creatures like kangaroos and wallabies. The young

of the kangaroo remind us of the young crayfish or the young lobster in the manner in which they flee to their mother for protection in the hour of danger. The mother lobster or mother crayfish, seeing danger coming, gives a warning shake with her claws, and the little ones scuttle under her body, and hide beneath her, like chicks called by the alarm-cluck of their mother. The young kangaroo also has to depend upon the help of its mother for security. But the kangaroo mother is not content merely to hide her baby, as the lobsters and crayfish hide theirs. She receives her little one into her pouch, and then

away she bounds, carrying the little one with her. The baby kangaroo pops his perky little head over the edge of his soft and furry cradle, and smiles, secure from danger, if baby kangaroos do smile. Kangaroos are not the only young animals which, when young, enjoy the privilege of being carried without

having paid their fares. All the babies of the animals which we call marsupials enjoy the same good fortune. The marsupials are those animals which have this special pouch in which to carry their young about when they are growing up.



A JAPANESE APE AND A BABY



A MULE, WITH A DWARF DONKEY AND HER BABY

But often enough the mother marsupial, if she be, say, a crab-eating opossum, must feel like the old lady who lived in a shoe, for she, too, has so many children that she cannot tell what to do to carry them all in the manner in which the mother kangaroo carries her family. Well, the opossum possesses something which the kangaroo has not. It has what, for the moment, we will venture to call a tree-climbing tail. The kangaroo has a tail of another kind, which acts as a prop when the animal sits up; and we have only to watch a couple of baby kangaroos at play to see another purpose which this tail can be made to serve.

While sitting up, they suddenly rise upon the thick part of the tail, and strike out in play at each other with their hind feet. It is well that it is in play. When they grow older they may have to use the same trick in real earnest, but then they will strike out with their powerfully armed hind claws, not at each other, but at man or dog, and tear either very seriously. And the little tricks which they play with their fore paws come in time to serve serious ends. A big kangaroo chased into water by dogs will calmly seize an enemy and hold it under the water until it is drowned. To such ends do the tricks of the baby kangaroos lead.

Now the tail of the opossum does not help it in this way. But it is like the tail of the American monkey—a sort of fifth hand or foot. As the opossum climbs a tree, this tail clings tightly round a branch and steadies the animal. The little opossums have little tails, and those who cannot ride in the mother's pouch, ride on her back, their tiny tails coiled tightly round hers. Thus they cling, as we ourselves cling by our hands to the straps in overcrowded trains and trams. The baby opossums are Nature's "strap-hangers."

Having mentioned the use which the New World monkeys make of their tails, we must remember how devotedly the mother monkey carries her baby about when it is not yet old enough to run quickly. Now and again she will support

the little one with one arm, but she soon teaches it to cling tightly to the hair with which her body is covered, so that when she flees from peril she may have all four limbs at liberty. The baboon mothers and fathers encourage their little ones to play and become active, but when the little ones quarrel, as they often do, father baboon will step up, give the quarrelsome ones a good spank, and retire with all the satisfaction of a parent who has discharged a painful but necessary duty.

Some of the great apes—which are said to be not very cleanly in their habits—are a good deal cleaner than they are pictured, for they carry their babies down to stream or river, and teach them the blessed art of washing themselves. The little apes at first do not like it, but if they knew natural history as well as children know it, they might say: "You need not wonder that we do not like the water when even little seals and other water animals do not." For that is

the fact. The baby seals are very unwilling to enter the water at first, and their patient, affectionate mothers have to persuade them to take to the sea in which they are afterwards to make their home.

Young otters, the finest of all swimmers in this country, have to be taught to trust themselves in the river, just as the young swallows and the young eagles have to be taught to fly.

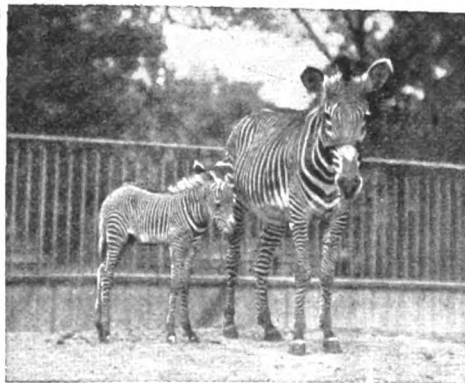
It is hardly correct to say that youthful beavers have to be taught to do their work, but, at any rate, we do know that they begin by very easy stages, and that not until the summer, during which they have been romping in the woods near the water, has nearly gone. They are then brought back from the woods to the river home, and while mother and father are hard at work, laying up a winter store of food, and making the home snug and safe for the cold days, the little ones play at being busy, nibbling twigs, carrying them to and fro, making glorious mud-pies, and patting bits of them on to the dam, or the family home. They doubtless think it all fine fun, but their play is the real preparation for the work of their lives.



FIVE EWES AND THEIR ELEVEN LAMBS



A CONGO MARSH BUCK AND YOUNG
The baby is four weeks old



A MOTHER ZEBRA AND FOAL
The foal is one week old

We have all seen lambs at play in the fields, but it is finest to see them on the hills, where they skip and leap about the rocks just like bouncing balls. Perhaps it does not occur to us that in this play, which their mother quietly watches, they are practising for the day when, in deadly struggle, they may have to contend with other sheep.

Calves are never very playful, but they have to learn their lessons, whether they do it in fun or in earnest, for there are deadly weeds in our fields which they must avoid. A young tiger would quickly discharge from its throat any poisonous substance which it might have swallowed; but the calf has a series of four stomachs, and cannot so easily rid itself of poison, hence it has to be very careful, or its mother has to be very careful for it. Wild animals are less likely to be poisoned than domestic animals, but they have their dangers, and the little



YOUNG HIPPOPOTAMUSES 20 MONTHS OLD

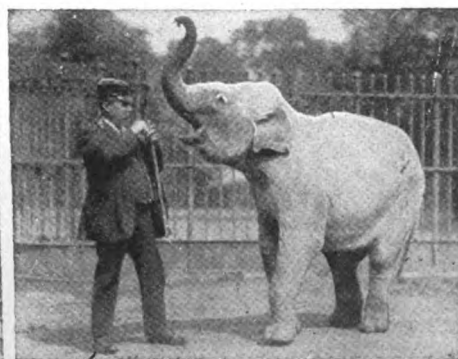
camel which we see in the picture, though it is very young, would, if left out in the wilds, probably manage to steer clear of poisonous weeds. That would depend, however, upon whether it were in the place to which its parents belonged in their free state. For we know that camels taken to a strange part of Africa died in great numbers,

from eating weeds which the native camels all avoided. The chief concern of the young rhinoceros is to avoid getting drowned in the water to which its parents take it to drink, or from being

smothered in the mud in which they love to roll. It must learn also to lead the way by safe paths to and from the home in the reeds or in the depths of the jungle when feeding and drinking and bathing are over—for in many instances it is the baby rhinoceros which heads the march on these trips. One



A BACTRIAN CAMEL AND ITS BABY
The young camel is five weeks old



A YOUNG ELEPHANT LEARNING TO BEG
The elephant is two years old

other thing it must learn, too—to tell by the power of its nose what animals or men are in the neighbourhood. And it does it; it can tell when a man is hundreds of yards away—not by sound, but simply by smelling him. The young hippopotamus has to go through much the same sort of training, but he has to be much more expert in the water, for is he not the young “river horse”? Both he and the rhinoceros display the warmest affection for the mother, and if the latter be killed, the little one will not leave her, but remains to mourn until it is either shot or dragged away from the spot by ropes.

The most interesting of all the big babies is the baby elephant, which is as affectionate as a baby hippopotamus, but cleverer. If men catch a young elephant, they can train it to do things which seem almost human; but the mother elephant is perhaps an even better trainer of her baby. Take the case of a baby elephant which had sustained a bad injury to its head. It was like a cross child with a sore finger; could not bear to be touched, and ran away in fury if anybody tried to cure it. This could not go on, for the wound was a bad one, and the young elephant's life was in danger, so the keeper talked to the baby elephant's mother, and this clever creature understood what he wanted.

She quietly seized her baby with her trunk, and forced it down upon its knees, holding it there while a doctor cleaned and dressed the wound; and this was repeated every day until the little one was quite cured.

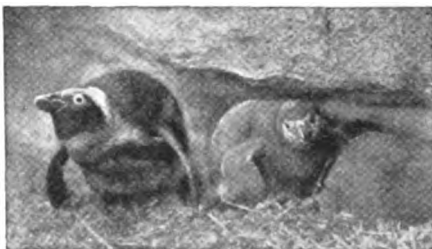
Baby giraffes and zebras are not educated in this way. They are taught to avoid man just as they are taught to avoid the lion, the hyena, and the

jackal. But, if they do happen to be caught, they are treated with great kindness, and live happily in our zoo or in similar gardens elsewhere. There are no lions or hyenas to kill them there. They are much too well looked after for that. The keepers in the zoological gardens, who look so very stern and solemn, and who sometimes frighten tender-

hearted children by telling them not to give monkey-nuts to tigers and bath-buns to the seals, are on certain occasions—when no one is looking—as gentle as women to their charges.

You ought to see them when a baby is born in a zoo—not a little pink, fat, ten-toed, fluffy-headed human baby, but a baby with claws and whiskers, or a baby with a trunk of a nose, or a baby with hairy body and a great, long, hairy tail. A new baby in a zoo turns all the stern-faced keepers into beaming nurses. The creases come out of their faces, the frown disappears from their brows, their cheeks expand, their lips smile, their eyes melt with pleasure, they need only cap and apron and a sewing-box to look exactly

like your own nurse. The angel in a zoo is the last-born baby. It turns the place into heaven. The keepers cluck to it, cuddle it, play with it, feed it, and comfort it when it is cutting its teeth. If one of these babies gets ill, there is a regular crisis of grief among the keepers. And it is not only the keepers and the kind, wise superintendent who love these city-born babies of the jungle and desert, and who do everything in their power, night and day, to keep the little things fat and warm.



A PENGUIN AND BABY IN THEIR NEST
The baby is ten days old



A GIRAFFE AND HER BABY
The baby is ten months old



A YOUNG POLAR BEAR AT THE LONDON ZOO
The bear is four months old



DO THE STARS REALLY TWINKLE?

CONTINUED FROM PAGE 5385.

THE answer to this question is : No.

A source of light may really twinkle; the light may grow less and more intense alternately because less and more light is really being produced. But the stars are suns, and they do not really twinkle. Something must happen to the light from the star before it reaches our eyes which makes the star appear as if it twinkled. The star itself sends steady, equal rays of light in all directions, and there is no reason to believe that anything happens to these rays until they reach our air.

But when they encounter the air, various things may happen; and one is that some of the rays may get slightly delayed as compared with others, and thus there is made possible the remarkable thing called interference, which we notice in the case of sound-waves and water-waves. It is possible, as we see when we throw two stones, one after the other, into a pond, to have two sets of waves going in such a way that they will either cancel each other or double each other. This interference in the case of light-waves causes what corresponds to a beat in sound-waves. It is probable that the twinkling of stars is due to this fact of interference.

WHY DOES BOILING MAKE POTATOES SOFT AND EGGS HARD?

It seems curious at first sight that the same process should have such different results in these two cases; but the key to the puzzle lies in the very different natures of an egg and

a potato. A potato is mainly a store of starch for the future needs of the plant, and the bulk of it consists of grains of starch covered with a hard coat of almost woody substance. It is these that give the potato its firmness. When the potato is boiled, water is drawn into the starch-grains through the hard, stiff coat, which is not elastic, and cannot expand when its contents are increased.

Water cannot be compressed, and therefore the grain is bound to burst. The bursting of all the hard envelopes of the starch-grains, and the increase of water in the potato as a whole, are the causes of the potato's softness when it has been boiled.

Though there is much more water in an egg than most people think, a large part of it consists of a peculiar chemical substance, meant to be a supply of food material to the growing chick, and called egg-albumen. It belongs to the great class of the proteins. This word means the same as proteids, which is better known, but is now no longer used by chemists. Proteids, or proteins, are the most important of all animal and vegetable compounds.

Perhaps the most especial fact about the proteins is that they are made up of molecules which are enormous, for molecules, and probably this accounts for the fact that they are very easily turned solid by various means. This is called coagulation; and every protein has its coagulation-point of temperature. The albumen,

or white, of an egg is an example of this, and the egg turns hard because this protein clots, or coagulates.

We must not suppose that, like the turning solid of water when it is cooled, this is merely a question of temperature, for a clotted protein does not turn liquid again when it cools, and it is quite easy to clot a protein in many ways without heating it at all. Clotted protein is naturally very much less easy to digest than liquid protein.

HOW FAR DOES SPACE EXTEND?

We know that though the earth never ceases to fly in space, yet its path is a closed one, since it moves in what is very nearly a circle, and not in a straight and endless line. As far as that movement is concerned, the earth does not need so much space, after all, for its flight. But we find, when we study the sun, that he also is moving, and moving onward; not, so far as we can tell, in a closed path, or orbit, at all. And so we are bound to ask how far does space reach, for we ourselves must be travelling with the sun wherever he goes.

The only possible answer, fearful though it may sound, is that space goes on for ever and ever in all directions. The Latin word for infinite simply means not ended, or unbounded, and what we mean when we speak of the infinite universe is that space is without end in all directions. Yet we are not to allow this tremendous idea to make us shake, which is what the word tremendous means. For greater—far greater—than infinite space is the wonderful mind of man, which is able to survey and think of such a thing.

WHAT IS SPACE MADE OF?

There is no other possible answer to this question than that space is made of—space! The stuff that makes things does not make space, but it exists in space. Space is no kind of matter, however transparent and fine, but all matter and the things that matter makes exist in space. We might as well ask the question, What is time made of? as, What is space made of? And there is nothing but the corresponding answer to return to both.

We know that all sorts of wonderful things happen through space. Light flies through it for immense distances, and the power of gravitation acts through it. At first we can find nothing at all to carry these powers, and yet our minds assure us that there must be something there, or gravitation could not act

and light could not travel. Thus we come to another interesting question—a question which really can be asked and must certainly be answered, What fills space?

Certainly something fills space, and we may call it the ether. We say that gravitation acts through this ether, that the ether conveys light, radiant heat, and electricity, and that it exists absolutely everywhere. We believe that infinite space is filled with this ether—which, indeed, it is now the fashion to call the “ether of space.” But at present we can scarcely return any more definite answers as to what this ether is, though we know so much of what it does.

IS IT POSSIBLE TO KNOW THE FUTURE?

In many ways we *do* know the future, and are always learning to foretell more and more of it. There was seen not long ago in the sky a great comet which has not been beheld by the eye of man for three-quarters of a century, but the return of which was predicted correctly to within a few weeks or days. Again, we know that, on the average, men who eat and drink too much will die sooner than those who do not. We know that if we buy something at a shop without paying for it, a bill will be sent in. We know a great deal of the future, therefore, because the future, like everything else, has causes, and where we know the causes we can foretell what the effects will be. Science, it has been said, is foreseeing, and that assertion is yearly coming to be more justified.

Though we do not know that we shall die during the following year, we know pretty closely how many persons will die, how many babies will be born, how many men will go bankrupt, and so on, in the following year. We can apply the law of averages, and that helps us to foretell the future with fair accuracy.

There is much we cannot know, much of detail about our own lives which no one can predict, and it is indeed well to know that our own wills and courage and faith can *make* the future, and that it is not *fatally* decided for us in every particular by some power against which we are helpless. Too many people have believed this lie, and have failed in consequence to live the highest kind of lives.

WHAT IS FATALISM?

In many times and in many parts of the world men have preached that everything which will happen will do so whatever we try to do, or try not to do. Men

have rightly seen that great facts in the world go on whether we will or not, that autumn follows summer, that we all must die, and so on. And so they speak of something which they call Fate. But too often they have gone on to say that our feeling of power and of will is a mistake and unreal, and that, though we think we decide things, everything we do is really done to us, and we are in the grip of Fate just as much as lifeless things and animals and plants are. This heart-breaking doctrine is called Fatalism.

WHY IS IT BAD TO BELIEVE IN FATALISM?

Anyone can readily guess what are the consequences of fatalism. Of course, it means that, in places where it is believed, men fold their hands and accept whatever comes without a protest. If there is drought, they sit still and suffer instead of going in search of water. If there is a pestilence, or a wicked king on the throne, or if the crops do not ripen, they just accept these things and say: "This is Fate, and what is the good of striving against it?"

But the truth is that, though everything is due to causes and must follow those causes, the will of man is one of the causes in the world; it is, indeed, the greatest of them all in the effects it can produce. And so fatalism is false, and the true doctrine to believe is that God helps those who help themselves.

ARE WARS NECESSARY?

No real thinker believes that war, as we now understand it, is necessary. But the question is much more difficult if we ask it regarding the past. Everyone will now agree that certain kinds of wars were never necessary and need not have happened. Among them would be all wars undertaken merely for the sake of a single person, whether for the sake of a king and his royal line, or for the sake of a great conqueror like Napoleon.

We shall all agree, also, that the wars of religion were not necessary. It could not be to the real service of religion that men should kill each other, and, of course, in all such cases the real cause was the ambition and lust of power of individual persons, kings and others, with whose "immeasurable, unimaginable guilt, heaped up from hell to heaven," as John Ruskin says, history is full.

But there were also wars made by more civilised peoples, whose numbers were rapidly increasing, upon savages. All civilisation has spread in this way, and those among whom it spread have

always fought against the invaders, as the Gauls and the Britons did against Julius Cæsar. It seems that, as the world is made, such wars were necessary in the past, just as death is necessary.

The case is quite different now, when the whole of the habitable world, and practically all the uninhabitable world too, have already been brought under the control of the so-called civilised nations; and so, in the future, these wars of aggression also will no longer be necessary.

IS THERE ANY GOOD IN WAR?

Shallow people have often declared that there is great good in war, however horrible fighting may appear at first sight. These people have the excuse that certainly a nation begins to go downhill when it has nothing to fear, and begins to get luxurious. But it is horribly untrue to say that there is now any good in war. Probably there was some good in it ages ago, when every man was a fighter, and when personal courage and powers of endurance made for success. Then, at any rate, the cowardly and the weaklings would disappear.

But nowadays a nation sends the pick of its manhood into battle, where vast numbers of them die by the enemy's bullets and shell, and still larger numbers by disease. But the idle and puny and ill stay at home and are not killed.

This can only mean that those who are not fit to be soldiers stay at home and become the fathers of the future. It has been clearly proved that nowadays any nation which undertakes a great war suffers terribly, whether it wins or loses, by the awful destruction of so many of the finest of its strong young men. No matter how much gold the conquered have to pay, the conqueror can never be compensated for this loss of the nation's life.

Then there are the consequences of the great cost of a war: the upkeep of so many men who are producing nothing, the interference with commerce, the destruction of buildings, and the evil passions called forth.

As for the courage and self-sacrifice often found in war, they are always called forth from mankind whenever they are required; but no one therefore says that fires and mine accidents and shipwrecks, and other things of that kind which give opportunities for heroism, are good things in themselves.

CAN A PIECE OF IRON GET TIRED?

Certainly it can, and so can a piece of steel, and, indeed, metals in general, as well as many other things that are not really alive. When the iron is "tired" it will not behave in the same way as when it is in its usual state. After a "rest" it will come right again.

People who use razors often notice that if a razor is used every day it will not shave so well. It gets tired, but after a rest it will take as keen an edge as ever. This is a very interesting question which has lately been studied very carefully, and the special interest of it is more even than we can see for ourselves at first; for if ordinary matter, not alive, can get "tired," perhaps part of *our* tiredness may be due to the same thing happening in the matter of which our bodies are made. Not much is known about fatigue, and it is very important to discover that there is a change produced in all matter by strain.

CAN WE THINK ABOUT PEOPLE WITHOUT SEEING THEM IN OUR MIND?

Certainly we can, for we remember our friends by many senses, and not by our eyes only. In most people the mind's eye, as we call it, is very powerful, and they remember faces clearly, and think of their friends as something *seen*. But in other cases people have their mind's ear, as we might equally well call it, very well developed, and they remember voices clearly, and will often think of their friends or their enemies as something *heard*.

Exactly the same is true of other senses, such as the sense of touch. When we are very fond of a person, our thought of him or her may mean recalling the face and the voice and the touch of the hand all together. The artist will have the one tendency strongest, the musician another. Some people think of their friends under their names; but in our minds we may see their eyes, or mouth, or clothes.

WHY DOES ELASTIC STRETCH?

We know that many kinds of material made by living beings have properties which are not found anywhere else. The secret must lie in the way in which the little molecules, as they are called, that make up the elastic are connected. All we know as yet is that, for molecules, they

are very large and complicated, and are probably linked together in a very complicated way. We must distinguish between the stretching of a thing like elastic, which flies back, and the stretching of, say, putty, which never flies back.

CAN METALS BE POISONED?

The answer to this question is yes. That is to say, we find that metals which do certain things when an electric current is passed through them, or when they are heated, or when a beam of light plays upon them, and in other such cases, can no longer do what we expect if they have first been treated with some of those very chemical compounds, such as prussic acid, which poison living creatures.

When a person is under the influence of chloroform, certain of his nerve-cells are poisoned, and do not work, and then the person will not react, as we say, to pain or to light and other stimulants. In the same way, not only a strip of turnip or carrot, but a strip of metal may be poisoned and fail to react. The rule seems to be that anything which acts in a particular way on a strip of muscle will act in a similar way on a strip of vegetable tissue or on a strip of metal.

CAN A BLIND MAN'S TOUCH TAKE THE PLACE OF HIS SIGHT?

The answer to this is partly yes and partly no. Certainly the sense of touch can never develop in any blind man so as really to make up for his loss of sight, and no one supposes that it can. But it is true that a blind man, because he must make the most of the senses he has, educates his sense of touch to a high degree, and makes the most of it. People who can see do not do so, any more than they develop the sense of smell to the utmost. When we can judge of a thing positively by looking at it, we do not trouble to try our fingers on it.

But it is quite untrue that the sense of touch itself is more delicate and acute in blind people. The point has lately been studied, and it is found that touch is less acute in blind people, though it may be better educated for special purposes. The brain being a whole, the whole of it must suffer when part is defective.

ON SIR PHILIP SIDNEY

SIR PHILIP SIDNEY, who was born in 1554 and died in 1586, from the result of a wound received while fighting in the Netherlands, was one of the most beautiful characters of his time. Although we know him as one of the finest poets of the Elizabethan period, none of his poems was printed during his lifetime, and the fame which he enjoyed in his own day was largely due to his personal character. Whenever we wish to think of a true hero and a Christian gentleman, the name of Sir Philip Sidney is the one that comes most readily to mind. Sir Fulke-Greville was a fellow-poet and comrade of his. He wrote the life of his friend, which was printed in 1652. He was also the author of this poem, in which he so beautifully celebrates the virtues of Sidney.

SILENCE augmenteth grief, writing increase
Stal'd are my thoughts, which loved and
lost, the wonder of our age;
Yct quickened now with fire, though dead
with frost ere now,
Enraged I write I know not what; dead
quick, I know not how.

Hard-hearted minds relent, and Rigour's
tears abound,
And Envy strangely rues his end, in
whom no fault she found;
Knowledge his light hath lost, Valour
hath slain her knight:
Sidney is dead, dead is my friend, dead
is the world's delight.

Place pensive wails his fall, whose pres-
ence was her pride;
Time crieth out, my ebb is come, his life
was my springtide;
Fame mourns in that she lost, the ground
of her reports,
Each living wight laments his lack, and
all in sundry sorts.

He was — woe worth that word — to each
well-thinking mind,
A spotless friend, a matchless man, whose
virtue ever shined,
Declaring in his thoughts, his life, and
that he writ,
Highest conceits, longest foresights, and
deepest works of wit.

He only like himself, was second unto
none,
Where death — though life — we rue, and
wrong, and all in vain do moan,
Their loss, not him wail they, that fill the
world with cries,
Death slew not him, but he made death
his ladder to the skies.

Farewell to you, my hopes, my wonted
waking dreams!
Farewell sometime enjoyed joy, eclipsèd
are thy beams!
Farewell, self-pleasing thoughts, which
quietness brings forth,
And farewell friendship's sacred league
uniting minds of worth.

And farewell, merry heart, the gift of
guiltless minds,
And all sports, which for live's restore,
variety assigns,
Let all that sweet is, void! In me no
mirth may dwell,
Philip the cause of all this woe, my life's
content, farewell!

Nor rime, the scourge of rage, which art
no kin to skill,
And endless grief which deads my life,
yet knows not how to kill,
Go seek that hapless tomb, which if ye
hap to find,
Salute the stones, that keep the lines, that
held so good a mind.

Now sink of sorrow I, who live, the more
the wrong,
Who wishing death, whom death denies,
whose thread is all too long,
Who tied to wretched life, who look for
no relief,
Must spend my ever-dying days in never-
ending grief.

Heart's ease and only I, like parallels run
on,
Whose equal length, keep equal breadth,
and never meet in one,
Yet for not wronging him, my thoughts,
my sorrows cell,
Shall not run out, though leak they will,
for liking him so well.

THE CHILD'S WISH IN JUNE

If the author of these verses is not known to fame and if they are not of any real poetical merit, they at least convey a very pleasing sense of that delightfully lazy month of June. All work and no play, as we are told, makes Jack a dull boy, and even Nature seems to take a rest in June. Midsummer is a good time for us all to do a little idling, to enjoy the bright sunshine, the sweet bird-song, and the lazy drone of the bees.

MOTHER, mother, the winds are at play;
Prithee, let me be idle to-day!
Look, dear mother, the flowers all lie
Languidly under the bright blue sky.

See how slowly the streamlet glides;
Look how the violet roguishly hides;
Even the butterfly rests on the rose,
And scarcely sips the sweets as he goes.

Poor Tray is asleep in the noonday sun,
And the flies go about him one by one;
And pussy sits near with a sleepy grace,
Without ever thinking of washing her face.

There flies a bird to a neighbouring tree,
And very lazily flieth he;
And he sits and twitters a gentle note,
That scarcely ruffles his little throat.

You bid me be busy; but, mother, hear
How the humdrum grasshopper soundeth near;
And the soft west wind is so light in its play,
It scarcely moves a leaf on the spray.

I wish, oh, I wish I were yonder cloud,
That sails about its misty shroud;
Books and work I no more should see,
But I'd come and float, dear mother, o'er thee!

THE DUST

In these verses written by Gertrude Hall, we have a striking reminder that all earthly things return to dust, for it is indeed true that the dust which Betty has to brush away is but the powdered remains of many things which once were beautiful.

It settles softly on your things,
Impalpable, fine, light, dull, grey;
Her dingy dust-clout Betty brings,
And, singing, brushes it away.

And it's a queen's robe, once so proud,
And it's the moths fed in its fold;
It's leaves, and roses, and the shroud
Wherein an ancient saint was rolled.

And it is Beauty's golden hair,
And it is Genius's crown of bay,
And it is lips once warm and fair
That kissed in some forgotten May.

A HUNDRED YEARS TO COME

The poet who sings in the following verses strikes a note of sadness, and seems oppressed when he contemplates the passing away of everything that is alive and gay at the present time. It is true that in one hundred years few living creatures of to-day will still exist, but the mighty stream of life will still flow on, and we must give place to others, as others have given place to us, so that the prospect is not one of sadness, but rather one to spur us to our best endeavour while our days shall endure. The author of the poem is C. F. Brown.

WHERE, where will be the birds that sing,
A hundred years to come?
The flowers that now in beauty spring,
A hundred years to come?
The rosy lips, the lofty brow,
The heart that beats so gayly now,
Oh, where will be love's beaming eye,
Joy's pleasant smile, and sorrow's sigh,
A hundred years to come?

Who'll press for gold this crowded street,
A hundred years to come?
Who'll tread yon church with willing feet,
A hundred years to come?
Pale, trembling age, and fiery youth,
And childhood with its brow of truth;
The rich and poor, on land and sea,
Where will the mighty millions be,
A hundred years to come?

We all within our graves shall sleep,
A hundred years to come;
No living soul for us will weep,
A hundred years to come,
But other men our lands shall till,
And others, then, these streets will fill,
And other birds will sing as gay,
And bright the sun shine as to-day,
A hundred years to come.

BETTER THINGS

Several of George Macdonald's poems have already appeared in our pages, and we always find him praising the virtue of humility, the delight in simple things. In the following verses he celebrates those "better things" which we are apt foolishly to despise in our search after the vanities of life.

BBETTER to smell the violet cool, than sip the
glowing wine;
Better to hark a hidden brook, than watch a
diamond shine.

Better the love of a gentle heart, than
beauty's favour proud;
Better the rose's living seed, than roses in a
crowd.

Better to love in loneliness, than to bask in
love all day;
Better the fountain in the heart, than the
fountain by the way.

Better be fed by a mother's hand, than eat
alone at will;
Better to trust in God, than say: "My goods
my storehouse fill."

Better to be a little wise, than in knowledge
to abound;
Better to teach a child, than toil to fill per-
fection's round.

Better to sit at a master's feet, than thrill a
listening State;
Better suspect that thou art proud, than be
sure that thou art great.

Better to walk the real unseen, than watch
the hour's event;
Better the "Well done!" at the last, than
the air with shouting rent.

Better to have a quiet grief, than a hurrying
delight;
Better the twilight of the dawn, than the
noonday burning bright.

Better a death when work is done, than
earth's most favoured birth;
Better a child in God's great house, than the
king of all the earth.

LOVE'S REASONINGS

Charles Mackay, an English poet of some note in the last century, sings here in very simple strains the praise of bird-music, that unailing source of inspiration to the poets.

WHAT is the meaning of thy song,
That rings so clear and loud,
Thou nightingale, amid the copse—
Thou lark above the cloud?
What says thy song, thou joyous thrush,
Up in the walnut-tree?
"I love my love, because I know
My love loves me."

What is the meaning of thy thought,
O maiden fair and young?
There is such pleasure in thine eyes,
Such music on thy tongue;
There is such glory in thy face,
What can the meaning be?
"I love my love, because I know
My love loves me."

Oh, happy words! at Beauty's feet
We sing them ere our prime,
And when the early summers pass,
And care comes on with time,
Still be it ours, in care's despite,
To join the chorus free:
"I love my love, because I know
My love loves me."

TWO MEN

The point of this little poem is, of course, as old as the oldest of lessons which knowledge teaches man. The first thing any man can have realised was that death levelled all worldly distinctions. The writer of the poem is Charles Noble Gregory.

ONE was a king, and wide domain
He ruled as his sires had done;
A wooden hovel, a bed of pain
Belonged to the other one.

The king was ill and the world was sad—
But the monarch languished, the monarch died;
The beggar was sick unto death, but he had
No one to watch at his low bedside.

Then under the minster the king was laid,
While o'er him the marbles were piled;
But a shallow grave in the fields was made,
By careless hands, for poverty's child.

But now there are those who profoundly
declare
If you opened the tomb and the grave,
You could not distinguish, whatever your
care,
The dust of the king and the slave.

WHY IT WAS COLD IN MAY

This pleasant little piece of fanciful verse about the days was written by an American lady named Henrietta Robins Eliot.

THE Year had all the Days in charge,
And promised them that they
Should each one see the World in turn,
But ten Days ran away!
Ten Days that should have gone abroad
Some time in early May;
So when May came, and all was fair,
These Days were sent to bed,
And ten good Winter Days were sent
To see the World instead!

THE POET AND THE BIRD

Elizabeth Barrett Browning, one of the greatest of women-poets, points a moral in this little fable. The natural music of the singing birds is among the rarest delights of our senses, and one of the loveliest things in Nature, but the song of the poet springs from the depths of the heart, and endures for ever, whereas the song of a bird is of the things that perish.

SAID a people to a poet: "Go out from
among us straightway!
While we are thinking earthly things, thou
singing of divine.
There's a little, fair, brown nightingale who,
sitting in the gateway,
Makes fitter music to our ear than any
song of thine!"

The poet went out weeping—the nightingale
ceased chanting:
"Now, wherefore, oh, thou nightingale, is
all thy sweetness done?"
"I cannot sing my earthly things, the
heavenly poet wanting,
Whose highest harmony includes the low-
est under sun."

The poet went out weeping, and died abroad,
bereft there;
The bird flew to his grove, and died amid
a thousand wails!
Yet when I last came by the place, I swear
the music left there
Was only of the poet's song, and not the
nightingale's!

"Out of the uncharted, unthinkable dark we
came,
And in a little time we shall return again
Into the vast, unanswering dark."

WHAT DOES IT MATTER?

The writer of the following lines voices an eloquent plea for good conduct, and reminds us that it is not by what we inherit or what we acquire of wealth, not by our seeming success or failure that we are to be judged, but by what we think and do and our efforts to lead an upright and useful life.

IT matters little where I was born,
Or if my parents were rich or poor,
Whether they shrank from the cold world's
scorn
Or walked in the pride of wealth secure;
But whether I live an honest man,
And hold my integrity firm in my clutch,
I tell you, my brother, as plain as I can,
It matters much!

It matters little how long I stay
In a world of sorrow, sin, and care;
Whether in youth I am called away,
Or live till my bones of flesh are bare;
But whether I do the best I can
To soften the weight of adversity's touch
On the faded cheek of my fellow-man,
It matters much!

It matters little where be my grave,
If on the land, or in the sea;
By purling brook, 'neath stormy wave,
It matters little or nought to me;
But whether the angel of death comes down
And marks my brow with a loving touch,
As one that shall wear the victor's crown,
It matters much!

TO A SKYLARK

We have already read, in our book, Wordsworth's poem, "To the Skylark," and here is another poem by the same writer, in which he expresses not the general feelings of a poet awakened by the skylark's song, but recalls the emotion of some particular occasion when he had listened to a skylark. It is interesting and instructive to notice this difference between the poet's addressing "The Skylark" and "A Skylark," for a very important distinction is here observed.

UP with me ! up with me into the clouds !
 For thy song, Lark, is strong ;
 Up with me ! up with me into the clouds !
 Singing, singing,
 With clouds and sky about thee ringing,
 Lift me, guide me, till I find
 That spot which seems so to thy mind !
 I have walked through wildernesses dreary,
 And to-day my heart is weary ;
 Had I now the wings of a faery,
 Up to thee would I fly.
 There's madness about thee, and joy divine
 In that song of thine ;
 Lift me, guide me high, and high,
 To thy banqueting-place in the sky.
 Joyous as morning,
 Thou art laughing and scorning ;
 Thou hast a nest for thy love and thy rest,
 And, though little troubled with sloth,
 Drunken Lark ! thou wouldst be loth
 To be such a traveller as I.
 Happy, happy liver,
 With a soul as strong as a mountain river,
 Pouring out praise to the Almighty Giver !
 Joy and jollity be with us both !
 Alas ! My journey, rugged and uneven,
 Through prickly moors or dusty ways must
 wind ;
 But, hearing thee, or others of thy kind,
 As full of gladness and as free of heaven,
 I, with my fate contented, will plod on,
 And hope for higher raptures, when life's
 day is done.

RAIN ON THE ROOF

The author of this familiar poem was Coates Kinney, an American writer, well known in his day, who was born in 1826. He was a newspaper editor, and he wrote many poems, but he is best known by this very charming lyric. It cannot be said that he has chosen the best metre, though it does in a way suggest the gentle patter of the rain. The matter of the poem, however, is admirable, as he has seized upon a very familiar experience of Nature and conveyed it truthfully. The falling of rain while we lie abed in a little country cottage has a soothing effect on the mind, and awakens, in some strange way, the tenderest emotions of the heart.

WHEN the humid shadows hover
 Over all the starry spheres,
 And the melancholy darkness
 Gently weeps in rainy tears :
 What a joy to press the pillow
 Of a cottage-chamber bed,
 And to listen to the patter
 Of the soft rain overhead !
 Every tinkle on the shingles
 Has an echo in the heart,
 And a thousand dreamy fancies
 Into busy being start ;
 And a thousand recollections
 Weave their air-threads into woof,
 As I listen to the patter
 Of the rain upon the roof.
 Now in memory comes my mother,
 As she used in years ago,
 To survey her darling dreamers
 Ere she left them till the dawn ;

Oh, I see her leaning o'er me,
 As I list to this refrain
 Which is played upon the shingles
 By the patter of the rain.

Then my little seraph sister,
 With her wings and waving hair,
 And her bright-eyed cherub brother—
 A serene, angelic pair—
 Glide around my wakeful pillow,
 With their praise or mild reproof,
 As I listen to the murmur
 Of the soft rain on the roof.
 And another comes to thrill me
 With her eyes delicious blue ;
 And forget I, gazing on her,
 That her heart was all untrue.
 I remember that I loved her,
 As I ne'er may love again,
 And my heart's quick pulses vibrate
 To the patter of the rain.

Art hath nought of tone or cadence
 That can work with such a spell
 In the soul's mysterious fountains,
 Whence the tears of rapture well,
 As that melody of Nature,
 That subdued, subduing strain,
 Which is played upon the shingles
 By the patter of the rain.

NOW THE DAY IS OVER

The Rev. S. Baring-Gould, who is a famous novelist and writer of books of travel, has also given us several hymns which have long been favourites in all the churches. Who has not sung his inspiring "Onward, Christian Soldiers" ? As an evening hymn, giving voice to the simple faith of little children, that which we print below is sung in churches every Sunday wherever our language is spoken. Mr. Baring-Gould, who was born on January 28, 1834, has written some fine stories, such as "Mehalah" and "John Herring," but his beautiful hymns may outlast even his fine stories.

Now the day is over,
 Night is drawing nigh ;
 Shadows of the evening
 Fall across the sky.

Now the darkness gathers,
 Stars begin to peep ;
 Birds, and beasts, and flowers,
 Soon will be asleep.

Jesu, give the weary
 Calm and sweet repose ;
 With Thy tenderest blessing
 May mine eyelids close.

Grant to little children
 Visions bright of Thee ;
 Guard the sailors tossing
 On the deep blue sea.

Comfort every sufferer
 Watching late in pain ;
 Those who plan some evil
 From their sin restrain.


Through the long night watches,
 May Thine angels spread
 Their white wings above me,
 Watching round my head.

When the morning wakens,
 Then may I arise,
 Pure and fresh and sinless,
 In Thy holy eyes.


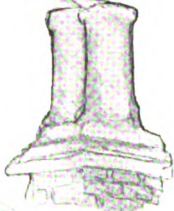
Glory to the Father,
 Glory to the Son,
 And to Thee, Blest Spirit,
 While all ages run.

LITTLE VERSES FOR VERY LITTLE PEOPLE

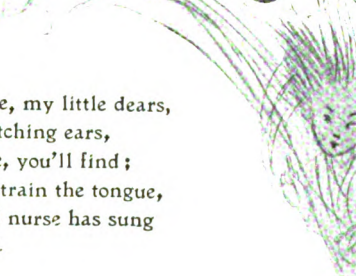
MY LADY WIND



My Lady Wind, my Lady Wind,
Went round about the house to find
A chink to get her foot in ;
She tried the keyhole in the door,
She tried the crevice in the floor,
And drove the chimney soot in.



And then, one night when it was dark,
She blew up such a tiny spark,
That all the house was pothered ;
From it she raised up such a flame,
As flamed away to Belting Lane,
And White Cross folks were smothered.



And thus when once, my little dears,
A whisper reaches itching ears,
The same will come, you'll find ;
Take my advice, restrain the tongue,
Remember what old nurse has sung
Of busy Lady Wind.



TEENY-WEENY

BY THE AUTHOR OF
"WYNKEN, BLYNKEN, AND NOD."

Eugene Field, who wrote this poem and that on the opposite page, was an American author, and one of the kindest-hearted men who ever lived. All the children loved him, and many thousands who only know his poems love him too. He was born in 1850 and died at the end of 1895. His life, which was all too short, was chiefly spent as a busy writer in the Chicago newspapers, but he made his name immortal by his many poems for and about children. No one has excelled him in his work.

EVERY evening, after tea,
Teeny-Weeny comes to me,
And, astride my willing knee,
Plies his lash and rides away ;
Though that palfrey, all too spare,
Finds his burden hard to bear,
Teeny-Weeny doesn't care ;
He commands, and I obey.

First it's trot, and gallop then ;
Now it's back to trot again ;
Teeny-Weeny likes it when
He is riding fierce and fast.
Then his dark eyes brighter grow
And his cheeks are all aglow :
" More ! " he cries, and never " Whoa ! "
Till the horse breaks down at last.

Oh, the strange and lovely sights
Teeny-Weeny sees of nights,
As he makes those famous flights
On that wondrous horse of his !
Often times, before he knows,
Wearylike his eyelids close,
And, still smiling, off he goes
Where the land of By-low is.

There he sees the folk of fay
Hard at ring-a-rosie play,
And he hears those fairies say :
" Come, let's chase him to and fro ! "
But, with a defiant shout,
Teeny puts that host to rout ;
Of this tale I make no doubt,
Every night he tells it so.

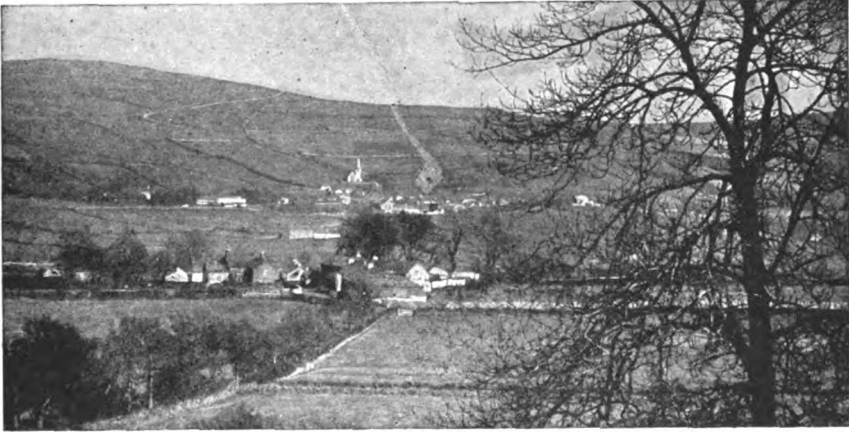
So I feel a tender pride
In my boy who dares to ride
That fierce horse of his astride,
Off into those misty lands ;
And, as on my breast he lies,
Dreaming in that wondrous wise,
I caress his folded eyes.
Pat his little dimpled hands.

On a time he went away,
Just a little while to stay,
And I'm not ashamed to say
I was very lonely then ;
Life without him was so sad,
You can fancy I was glad
And made merry when I had
Teeny-Weeny back again.

So of evenings, after tea,
When he toddles up to me
And goes tugging at my knee,
You should hear his palfrey neigh !
You should see him prance and shy
When, with an exulting cry,
Teeny-Weeny, vaulting high,
Plies his lash and rides away !



From "With Trumpet and Drum." Copyright 1892, by Mary French Field. Published by Charles Scribner's Sons.



THE VILLAGE OF RUTHWAITE, WHERE JOHN PEEL LIVED FOR MANY YEARS

D'YE KEN JOHN PEEL?

CONTINUED FROM PAGE 5470.

A WISE man once said that, if he were allowed to make all the songs, he would not care who should make the laws of the nation. He meant by that, of course, that people like to have fine thoughts and high ambitions expressed in songs which they can sing, and that they believe what they sing; therefore, if we had all the people singing fine songs, their opinions would be right, and, their opinions being right, they would be bound to get good and wise laws made for themselves. There is a great deal of truth in this idea.

But we cannot make songs to order, not good songs, at any rate. All the great songs which live have been composed with something more in the hearts of the men who wrote them than the mere desire to make a successful song. Therefore, as inspiration comes to all sorts and conditions of men, we find the songs of nations proceeding from the most unexpected

quarters. The grand old song "John Peel" is an instance of this. It is a song which has sounded throughout the world wherever English is spoken. Millions of people sing it who regard the song as only the creation of a

poet's brain, never imagining that the song had any relation to fact. The truth is that the song about John Peel describes a real John Peel, the real feats and character of an actual man. It is well worth while getting to know this hero of one of the greatest British songs. The real John Peel was a great, powerful Cumberland yeoman farmer, who was born in 1776, at Caldbeck, Cumberland, and grew to hardy man-



JOHN PEEL

hood among the lakes and mountains which had long been the home of his family. We may not think a man a great hero whose chief passion was the hunting of animals, but there was something in the nature of John Peel which has been in the nature of all

the great Englishmen who have carried the British flag to the ends of the earth. He was bold and fearless; the ways of Nature were as an open book to him; he knew all the country round, as a Red Indian knows his native woods. He waged war continually against the fox, which at that time did great damage to the Cumberland farmers' flocks. In order to do so, he organised a hunt. He trained dogs to help him, and there was no chase too far, nor way too rough or dizzy, for him and them to follow the fox to his hiding-place.

Although he was only a humble farmer, Peel's fame as a hunter spread far and wide, and squires and nobles were proud to join with the farmers in following his lead. One of his closest friends was a man named John Woodcock Graves, who, born at Wigton, Cumberland, in 1795, went as a young man to Caldbeck, and there set up a woollen manufactory. He hunted regularly with Peel, and in the evenings they would meet and talk over the day's hunt, and arrange matters for the following day's proceedings.

On one such night, as the two friends were thus engaged, with a cheery fire burning in the grate, and the wind howling and the snow falling outside, they heard a voice singing an old song. It was the voice of John Graves's mother, hushing his baby-boy to sleep with a favourite old Cumberland ballad called "Bonnie Annie." The two men mused over the comfortable fire, and the melody wove itself into the mind of Graves, and seemed to set itself to the doings of Peel in the hunt. And there and

then Graves took the pen and paper which they had been using for writing down the record of the hunt, and wrote the song "John Peel." When he had

written it, he sang it to the tune of "Bonnie Annie" to John Peel, down whose face the tears streamed as he listened to the fine, stirring words. In that manner this immortal song was born that winter night in the little parlour of that house in Caldbeck. Neither could

guess what fame the song was to gain, but Graves, after he had sung the words to Peel, looked up and said, half in jest, yet perhaps a little realising that he had performed a miracle: "You will be sung, John, when you and I have run to earth."

It was the hunting men of Cumberland who spread the song, and soon the stirring words were heard all over England:

D'ye ken John Peel, with his coat so grey?
D'ye ken John Peel at the break of the day?
D'ye ken John Peel when he's far, far away,
With his hounds and his horn in the morning?
'Twas the sound of his horn call'd me from my bed,

And the sound of his horn has me oft-times led;
For Peel's view-halloo would awaken the dead,
Or a fox from his lair in the morning.

It was to the tune of the old song "Bonnie Annie" that the song first became known,

but it was with the tune by which we sing it to-day, Metcalfe's tune, that it has become world-famous. It was some time about 1830 when Graves wrote the song, and though he emigrated in 1833 to Tasmania, he lived to know that the words written in honour

of John Peel had become known and beloved throughout the English-speaking world, and to hear that the song was sung



JOHN PEELE'S HOUSE AT RUTHWAITE



CALDBECK CHURCHYARD, WHERE JOHN PEELE IS BURIED

at theatres in London, in the trenches where the army fought in the Crimea, in the royal palace at home, where it was the favourite hunting-song of King Edward VII. Graves died in 1885, father of a numerous family. Peel died in 1854, and was followed to his grave by a great gathering of admirers. He hunted until within a week of his death, riding as well at seventy-six as a man half his age.

His life was like that of some character in an old novel. A giant in build, he had something of the determination of a giant. As a young man, he fell in love with a bonnie lassie named Mary White, the daughter of a well-to-do farmer at Uldale, and, without asking anybody's

leave, he had the banns published at church. But Mary's mother was there, and was shocked. She stood up in church, and cried out: "They're far ower young!" and the marriage was delayed. But John took his best horse, rode off to his sweetheart's house, and carried her away at dead of night, and married her at break of day. Then he returned to his father's house to say: "We're married." And that was all about it, except that they immediately got married a second time in church. It proved the happiest of marriages; and the eldest of his family of thirteen children, young John, became almost as famous a hunter as the splendid hero of our song had been.

JENNY LIND, THE QUEEN OF SONG

THERE is a house which has a famous room in it, called "The Nightingale's Cage," and for many years that house was the home of an old lady who was known to the world as Jenny Lind, "the Swedish Nightingale." Our grandfathers and grandmothers tell us how Jenny Lind became the Queen of Song; how millions of people in Europe and America crowded to hear her sing; how kings and queens and the greatest men and women of the day adored this quiet, shy woman with the wonderful voice.

One night when she had been driven to the Opera in New York, her coachman said to the crowd: "This is the hand that drove her. Half a dollar a kiss." And people actually paid the money to kiss her coachman's hand. Men and women starved themselves so that they might have the money to pay for a ticket for a concert where Jenny Lind was singing. Never before, or since, has any singer won so great a fame. And yet, through it all, Jenny Lind remained perfectly simple, and modest, and sweet. If she had had only a marvellous voice,

Jenny Lind would have been almost forgotten to-day. But she had a lovely character, and that has kept her memory alive. When she was at Manchester she called at the Blind Asylum. The people there did not know who she was,

but she sat down and talked to the blind girls. Presently she said to them: "Would you like me to sing to you?" In a few moments — so exquisitely did she sing — they were all whispering: "This must be Jenny Lind!" The tears streamed down the faces of the poor girls as she sang, one after another, the songs they knew and loved. Jenny Lind made a fortune by her singing, but she was always helping the poor and sick. In Norwich and in London there are hospitals to which she handed thousands of pounds. Nothing could give



JENNY LIND AT THE PIANO

her greater pleasure and happiness than to sing to the suffering and sad. Dean Forrest, of Worcester, was preaching one day in a London church, when Jenny Lind — then an old lady — came into the vestry to thank him for the sermon. He told her that, not long before, he had been

visiting a dying man who had heard Jenny Lind sing her great air, "I know that my Redeemer liveth." The man said his whole life had been altered by that song. When we go to Westminster Abbey we should look out for the memorial to Jenny Lind. It is near Poets' Corner, and on it we can read the words: "I know that my Redeemer liveth."

Jenny Lind, who was a native of Sweden, was born in 1820, and she began singing in opera when she was seventeen. She made a sensation in Dresden in 1844. She went at last to London, and people went almost crazy about this slim girl with the marvellous voice. Queen Victoria went again and again to hear her, and wrote in her diary: "There is a purity in her singing and acting which is quite indescribable." Every night when Jenny Lind was singing the Opera House

was packed, and her coming and going were treated as if she were indeed a queen. All this enthusiasm never made her proud. She wrote to Professor Blackie: "My increasing prayer is that what I gave to my fellows may continue to live on through eternity, and that the Giver of the gift, and not the creature to whom He lent it, may be praised and acknowledged."

Decorations and honours were showered on her by the monarchs of Europe, but she continued to be the same simple-hearted woman she had been before the world discovered her lovely voice. The other day an American lady, who was looking at her memorial in the Abbey, gave this little reminiscence of Jenny Lind. "I heard her sing in Boston more than fifty years ago. On the following day she sought shelter in our house in a storm of rain. She had been riding and was very wet. My mother made tea for her, and while the weather was clearing she offered to sing to us. Just imagine how charmed we were to hear Jenny Lind all to ourselves! She left her riding-whip behind her,

and when I ran out to give it to her she gave me a little scent-bottle. She was a sweet woman, full of gentleness, and I treasure that little gift to this day."

It was a great surprise when Jenny Lind left the stage, never to sing in opera again. This is the story of why she took this step, at the height of her popularity, and when great sums were being paid to her. An English friend found her sitting on the sands. She had a Bible open on her knee, and was looking out into the glory of a sunset that was shining over the sea. They talked, and the talk drew near to the inevitable question, "Oh, madame, how was it that you ever abandoned the stage at the very height of your success?"

Jenny Lind gave this memorable reply: "When every day it made me think less of this"—laying her finger on the Bible—

"and nothing at all of that"—pointing to the sunset—"what else could I do?"

So, very quietly, the Swedish Nightingale left the opera, and devoted the rest of her career to singing in oratorios or rendering the ballads which she had always

loved best. She went to Tennyson's home in the Isle of Wight once, and this is the record of her visit: "Jenny Lind came to Farringford and sang 'Auld Lang Syne' and 'Auld Robin Gray' for Tennyson at his special request. She sang Handel and some of the 'Elijah' magnificently. She is full of feeling and of fun, and is deeply religious."

There was another great singer, Mr. Sims Reeves, before the public at the same time as Jenny Lind, and one day, when these two were to sing together, they were seen pacing up and down the room, with music in hand, singing and practising, intent on the work before them.

"Why, Jenny," said her husband, "you must have sung those songs many times. Surely there is no need for all this practising?" The singer answered her husband: "You are a fine musician,



THE ROOM WHERE JENNY LIND OFTEN MET MENDELSSOHN
It was in the house of a friend of both the great musicians

but Mr. Reeves and I are singers, and we know what is best for us."

Up to the very last of her public performances she took the utmost trouble to practise before she sang.

Nothing is more astonishing about the career of Jenny Lind than its comparative shortness. She sang in opera in England for only two years, yet in that time she electrified the musical world. Twice Queen Victoria threw bouquets to the singer, an honour she never paid to anyone else. She retired practically five years after her first appearance in London, though she sang occasionally during the next few years, usually on behalf of charity.

Having married Mr. Otto Goldschmidt, she still took a keen interest in music, and attended the rehearsals of the Bach Choir, which he conducted. The writer has seen Jenny Lind singing in the choir, while the audience was quite unaware that the gentle lady in black silk was the songstress who had enchanted millions with her wonderful voice. Members of the Royal Family delighted to visit Madame Goldschmidt in her country home, and sometimes she would be persuaded

to sing once more the music of the past. There was a fine dignity about her which marked her out as one of the world's truly great women. She attended concerts where new singers were appearing, and no one was more generous than she in praising them. Adelina Patti tells how, one afternoon at a party, she was complimented in a most discriminating way by a charming old lady, whom, to her amazement, she afterwards found to be Jenny Lind.

During her career, when she was receiving enormous fees for singing, Jenny Lind distributed a great part of her wealth among hospitals in her native

land of Sweden and in her adopted country of England. To hospitals in Norwich and London she made splendid gifts which keep her memory sweet to this day. She was specially interested in Norwich, because she was the friend of the bishop. One of the sons of the Bishop of Norwich has left on record an account of how he hung over the staircase as a lad, greatly excited, to watch the arrival of the wonderful singer one evening.

A little child who had heard Jenny Lind described as "a perfect angel," asked the singer very naturally: "Where do you keep your wings, please?" When, some years after her death,



JENNY LIND AT THE HEIGHT OF HER FAME

the memorial to Jenny Lind was unveiled by Princess Christian in Westminster Abbey, a very pretty surprise took place. The organist played a selection from the oratorio "Ruth," which was composed by Mr. Otto Goldschmidt, Jenny Lind's husband. The old composer was present in the Abbey, and the sound of his own music touched him very much. One of Jenny Lind's lifelong friends was Hans Christian Andersen, the writer of the delightful fairy-stories. She

admired his genius, and used to read his stories to her own children.

In November, 1887, Madame Goldschmidt passed away, and a long procession, headed by representatives of Queen Victoria and the Royal Family, wound its solemn way to Great Malvern cemetery. There she rests, with the words she had sung so thrillingly inscribed on her tomb: "I know that my Redeemer liveth." Lovely as her wonderful voice was, her life had been fairer still. By the nobility and generosity of her disposition she won for herself, in the public esteem, a position such as no other singer has ever obtained.



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The Alhambra, Spain

THE GLOOMY KING OF SPAIN

No gloomier, more bigoted, or more cruel sovereign ever sat upon a European throne than Philip II. of Spain, the husband of our Queen Mary. With a magnificent empire extending over two hemispheres, revenues such as no monarch had before enjoyed, armies composed of the pick of the world's soldiers, led by the most brilliant generals, and a splendid navy, Philip was, nevertheless, the most miserable man of his time; and before he passed away he saw the failure of all his plans of ambition—failure that was the result solely of his own bitter intolerance and cruelty and obstinacy.

His father, the Emperor Charles V., of whom we read on another page, had given him ideas of universal empire, but he was less able to achieve such an ambition than was Charles; and although he fought great wars in Europe to get glory and power—and, above all, to make all his subjects conform to his own religious views—it is a cause for much satisfaction that he failed.

In Spain, Philip's great and lasting monument—a monument that is typical of the man himself—is the Escorial, a great building about twenty-five miles from Madrid, which was erected to be a

palace, a monastery, and a tomb all in one. Charles V. had urged upon his son to provide a suitable resting-place for his remains, and when Philip won the great battle of St. Quentin against the French in 1557 he made a vow to erect a great monastery and palace where his father's bones should rest, and to dedicate it to St. Lawrence.

Philip was a most superstitious man, and he had the Escorial designed in the form of a gridiron, because St. Lawrence

is said to have perished by martyrdom upon a gridiron. The plan is certainly the strangest of any great building in the world. Fabulous wealth was expended upon it, and it was not without reason that the Escorial was



THE ESCURIAL PALACE, NEAR MADRID

called in Spain "the eighth wonder of the world." For thirty years Philip devoted most of his spare time to visiting the mountains north-west of Madrid, where, 2,700 feet above the sea, he had selected a more or less inaccessible site for his monastery-palace. There he would sit or stand and watch the great palace gradually rising, as thousands of workmen built up the massive walls. In order to judge the effect from a distance, Philip would climb to a rocky crag a mile or more from the building,

and in a kind of natural chair formed by the granite-like rock, which ever since has been known as "the king's seat," he would sit for hours, with a spy-glass, gazing upon the wonderful palace that was being erected.

To this spot the monarch used to bring his secretaries and his papers, and from there keep up a correspondence with the different parts of his great empire. An old writer tells us that he did four times the amount of work there that he did in the same number of days in his capital. Philip himself used to boast that, thus hidden from the world, with a little bit of paper, he ruled over both hemispheres.

handsome salary for the full length of time for which he had been engaged.

"It is not Zuccaro's fault," said Philip; "it is the fault of the persons who brought him here. The king would sit for hours watching the artists at work, offering occasional criticisms and talking familiarly with them. In fact, it has been said that in the presence of this great building Philip's nature appeared to expand.

When the palace was far advanced, after the building operations had been going on for fourteen years, it was one night struck by lightning, and a fire broke out that came near to destroying it. Philip watched the fire with great anxiety, but at



PHILIP II. SEATED ON THE ROCK FROM WHICH HE WATCHED THE BUILDING OF THE ESCURIAL

Upon the decoration of the Escorial, and in pictures for its walls, Philip spent an enormous amount of money. He employed Titian and all the most famous Italian artists of the day, and some of their most brilliant works were the results of Philip's patronage. He was a gifted art critic himself, and was most exacting in his requirements, so that some of the artists had to do their work over and over again before they could satisfy the king. One of them, Zuccaro, who had been greatly overrated, failed to satisfy him at all, and he was dismissed back to his own country. But Philip always treated his artists generously with money, and when this unlucky painter was sent away he was paid a large sum, in addition to a

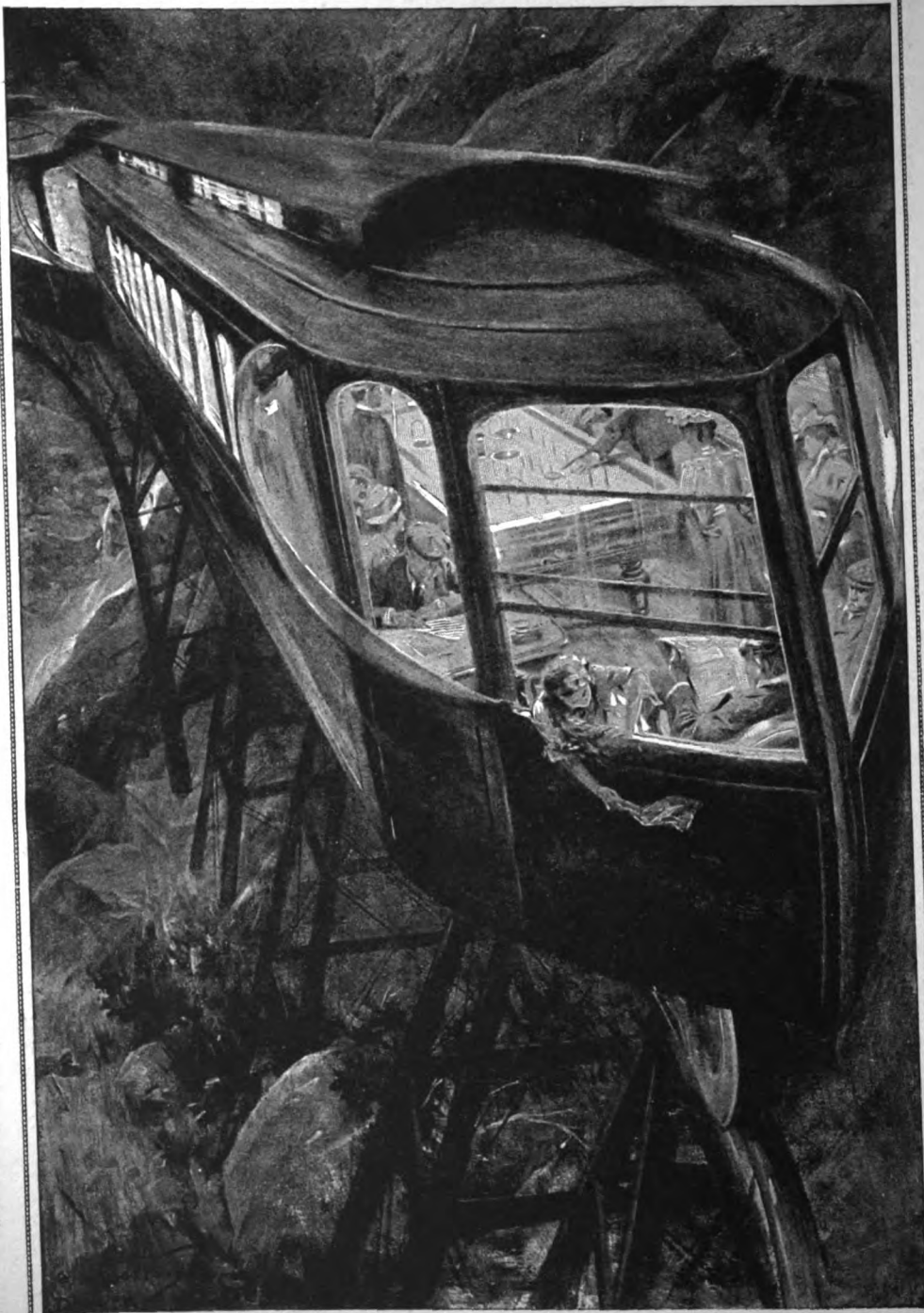
last it was subdued. Twenty-one years after the foundation-stone was laid the building was completed, and it is safe to say that no other building of such great proportions has ever been built in so short a time.

The Escorial is now slowly becoming a ruin. It has lost its ancient glory—if such a gloomy place could be said to have a glory—and is no longer inhabited, except for a part which is now used as a school.

When it was finished the Escorial was more than half a mile round, and had no fewer than sixty-eight fountains playing in its halls and courts. There were twelve thousand windows and doors, and the keys of the doors weighed more than half a ton. Philip died in the Escorial palace in 1598, and his remains lie buried there.

THE NEXT STORY OF MEN AND WOMEN IS ON PAGE 5579.

THE WONDERFUL TRAIN THAT IS COMING



In this picture we have a vivid and realistic picture of what the railway of the future will be like. Remarkable results must follow the invention of the "gyroscope" train, which is the application to the railway of that interesting toy, the gyroscope, which all boys know is the most wonderful of tops. Exhaustive experiments have already been made with a large car, and the "gyro-car," that runs on a single rail, has fulfilled all that its inventor expected of it and claimed for it. Not only will enormous speeds be reached by trains of this kind, but the gyroscopes will keep the train so steady that we shall be able to write while travelling, or even to play billiards.

THE CHILD'S STORY OF FAMOUS BOOKS

The works of John Ruskin, the great English philosopher, have all strange titles. "Sesame and Lilies" is the name of his book from which the following passage on "The Good and Happy Girl" is taken. Sesame was a plant deemed by the Arabs in ancient times to have certain magic power, particularly in the opening of doors. Probably that was why the door of the cave rolled open to the leader of the Forty Thieves, and afterward to Ali Baba, when the words "Open, Sesame!" were spoken. Ruskin's essays or lectures in this book called "Sesame and Lilies" are concerned with the education of boys and girls. The boys are supposed to be the openers of doors, in the sense of growing up to fight their fortunes in many different walks of life; and the lily is one of the oldest symbols for the good girl, or woman. The language of Ruskin, though dignified and weighty in style, is still simple and perfectly expressive of his thoughts, so that it can be read by young people with understanding.

A GOOD & HAPPY GIRL—By JOHN RUSKIN

Do not think you can make a girl lovely if you do not make her happy. There is not one restraint you put on a good girl's nature, there is not one check you give to her instincts of affection or of effort, which will not be indelibly written on her features with a hardness which is all the more painful because it takes away the brightness from the eyes of innocence and the charm from the brow of virtue.

The perfect loveliness of a woman's countenance can only consist in that majestic peace which is founded in the memory of happy and useful years, full of sweet records; and from the joining of this with that yet more majestic childishness, which is still full of change and promise, opening always, modest at once, and bright with hope of better things to be won, and to be bestowed. There is no old age where there is still that promise.

Thus, then, you have first to mould her physical frame, and then, as the strength she gains will permit you, to fill and temper her mind with all knowledge and thoughts which tend to confirm its natural instincts of justice, and refine its natural tact of love.

All such knowledge should be given her as may enable her to understand, and even to aid, the work of men; and yet it should be given, not as knowledge—not as if it were, or could be, for her an object to know, but only to feel, and to judge. It is of no moment, as a matter of pride or perfectness in herself, whether she

knows many languages or one; but it is of the utmost that she should be able to show kindness to a stranger, and to understand the sweetness of a stranger's tongue. It is of no moment to her own worth or dignity that she should be acquainted with this science or that; but it is of the highest that she should be trained in habits of accurate thought; that she should understand the meaning, the inevitableness, and the loveliness of natural laws; and follow at least some one path of scientific attainment, as far as to the threshold of that bitter Valley of Humiliation, into which only the wisest and bravest of men can descend, owning themselves for ever children, gathering pebbles on a boundless shore.

It is of little consequence how many positions of cities she knows, or how many dates of events, or names of celebrated persons; it is not the object of education to turn the woman into a dictionary; but it is deeply necessary that she should be taught to enter with her whole personality into the history she reads; to picture the passages of it vitally in her own bright imagination; to apprehend, with her fine instincts, the pathetic circumstances and dramatic relations which the historian too often only eclipses by his reasoning, and disconnects by his arrangement; it is for her to trace the hidden equities of divine reward, and catch sight, through the darkness, of the threads of woven fire that connect error with retribution.

But, chiefly of all, she is to be taught to extend the limits of her sympathy with respect to that history which is being for ever determined as the moments pass, in which she draws her peaceful breath; and to the contemporary calamity which, were it but rightly mourned by her, would recur no more hereafter. She is to exercise herself in imagining what would be the effects upon her mind and conduct if she were daily brought into the presence of the suffering which is not the less real because shut from her sight. She is to be

taught somewhat to understand the nothingness of the proportion which that little world in which she lives and loves bears to the world in which God lives and loves; and solemnly she is to be taught to strive that her thoughts of piety may not be feeble in proportion to the number they embrace, nor her prayer more languid than it is for the momentary relief from pain of her husband or her child, when it is uttered for the multitudes of those who have none to love them, and is "for all who are desolate and oppressed."

THE DEATH OF A QUEEN—By JOHN RICHARD GREEN

John Richard Green was one of the greatest historians who have ever attempted to tell the whole story of England's progress from earliest times to the making of the empire of which Englishmen are so proud to-day. Such an immense task requires the rarest gifts of mind, the widest knowledge, great power of expression, and industry unlimited. All these Green possessed, and yet he was physically weak, stricken, indeed, with consumption, so that the closing chapters of his great history were spoken by him from his sick-bed and written down by his wife, who afterwards became famous herself as a historian, and is still an active writer. In this passage from Green's "Short History of the English People" we have a fine example of the historian's restrained yet dramatic power of presenting a great scene from history—the death of Queen Elizabeth. He imparts a wonderful sense of the loneliness of her death, and the contrast it presented with the display and glitter of her life. It is at once a striking picture of a great woman, and a lesson in the vanity of royal pomp, for the favour of a people does not last for ever, and even kings and queens are but creatures of a day.

THE triumph of Mountjoy flung its lustre over the last days of Elizabeth, but no outer triumph could break the gloom which gathered round the dying queen. Lonely as she had always been, her loneliness deepened as she drew near the grave.

The statesmen and warriors of her earlier days had dropped one by one from her council-board, and their successors were watching her last moments, and intriguing for favour in the coming reign. Her favourite, Lord Essex, was led into an insane outbreak of revolt which brought him to the block. The old splendour of her court waned and disappeared. Only officials remained about her, "the other of the Council and nobility estrange themselves by all occasions."

As she passed along in her progresses, the people whose applause she courted remained cold and silent. The temper of the age, in fact, was changing, and isolating her as it changed. Her own England which had grown up around her, serious, moral, prosaic, shrank coldly from this brilliant, fanciful, unscrupulous child of earth and the Renaissance.

She had enjoyed life as the men of her day enjoyed it, and now that they were

gone she clung to it with a fierce tenacity. She hunted, she danced, she jested with her young favourites, she coquetted and scolded and frolicked at sixty-seven as she had done at thirty. "The queen," wrote a courtier a few months before her death, "was never so gallant these many years, nor so set upon jollity." She persisted, in spite of opposition, in her gorgeous progresses from country house to country house. She clung to business as of old, and rated in her usual fashion "one who minded not to giving up some matter of account." But death crept on. Her face became haggard, and her frame shrunk almost to a skeleton.

At last her taste for finery disappeared, and she refused to change her dresses for a week together. A strange melancholy settled down on her; "she held in her hand," says one who saw her in her last days, "a golden cup, which she often put to her lips; but in truth her heart seemed too full to need more filling."

Gradually her mind gave way. She lost her memory, the violence of her temper became unbearable, her very courage seemed to forsake her. She called for a sword to lie constantly beside

her, and thrust it from time to time through the arras as if she heard murderers stirring there. Food and rest became alike distasteful. She sat day and night propped up with pillows on a stool, her fingers on her lip, her eyes fixed on the floor, without a word. If she once broke the silence, it was with a flash of her old queenliness. When

Then, as her anger spent itself, she sank into her old dejection. "Thou art so presumptuous," she said, "because thou knowest I shall die." She rallied once more when the Ministers beside her bed named Lord Beauchamp, the heir to the Suffolk claim, as a possible successor. "I will have no rogue's son," she cried hoarsely, "in my seat."

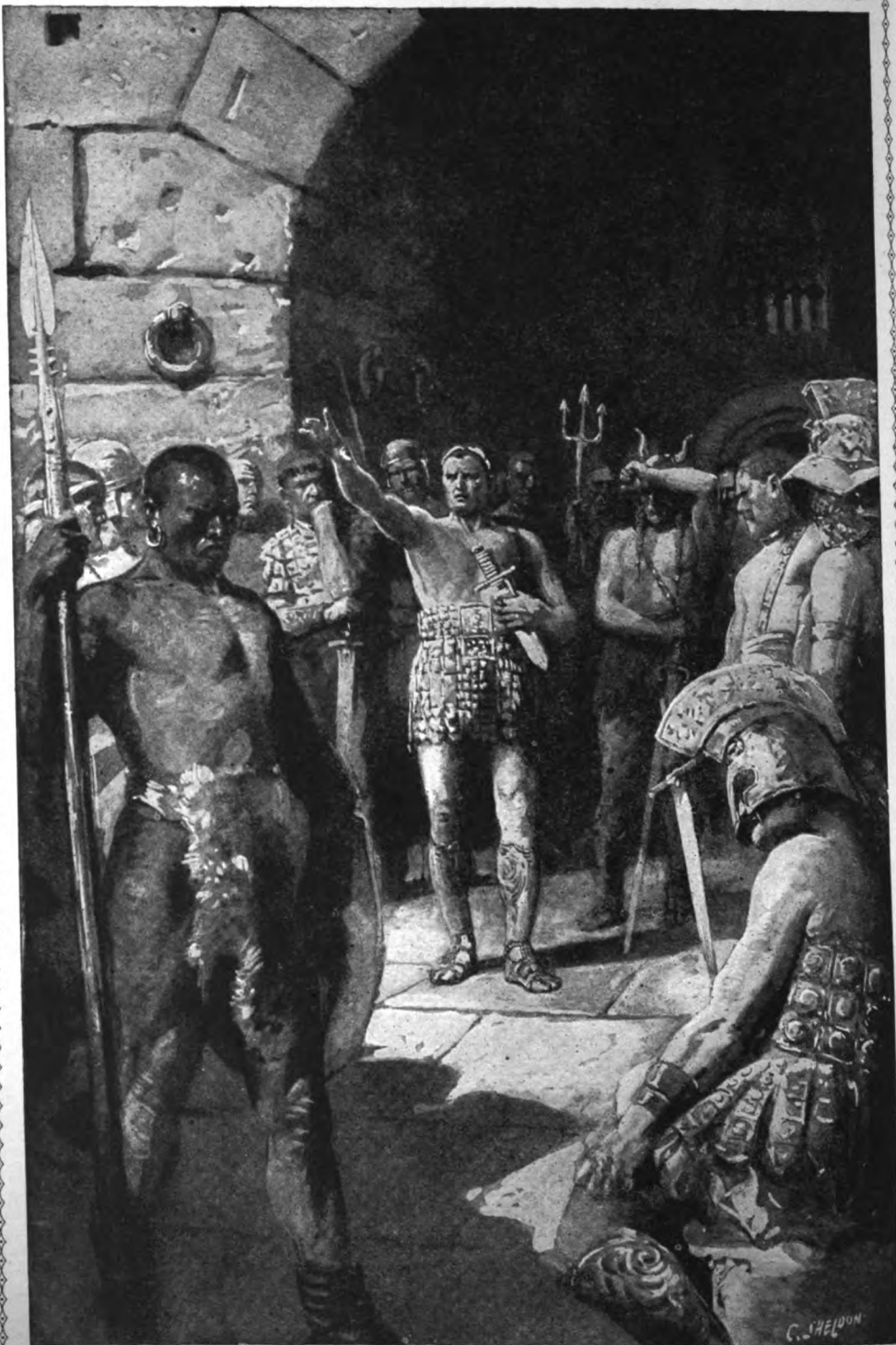


THE LAST HOURS OF QUEEN ELIZABETH: FROM THE FAMOUS PICTURE BY PAUL DELAROCHE

Robert Cecil asserted that she *must* go to bed, the word roused her like a trumpet. "Must!" she exclaimed; "is *must* a word to be addressed to princes? Little man, little man, thy father, if he had been alive, durst not have used that word."

But she gave no sign, save a motion of the head, at the mention of the King of Scots. She was, in fact, fast becoming insensible, and early the next morning the life of Elizabeth, a life so great, so strange and lonely in its greatness, passed quietly away.

THE GLADIATOR'S APPEAL TO HIS COMRADES



Spartacus, a famous gladiator in ancient Rome, was the leader in a great revolt against the Roman power that broke out about 73 years before Christ was born. With hordes of runaway slaves, who at one time numbered a hundred thousand, he passed from victory to victory, almost overrunning Southern Italy. At last his army was annihilated, and Spartacus was slain. Here we see him urging his fellow-gladiators to turn upon their masters.

THE GLADIATOR'S APPEAL

In the days of imperial Rome the favourite pastime of the people was to watch the gladiators fighting each other, or combating with wild beasts in the arenas. Every Roman city had its arena where these fights took place. The gladiators were slaves, chiefly captured in battle, and specially trained for the arena, where, sooner or later, they were doomed to be killed. Many Greeks were among these fighting slaves, and Spartacus was a Greek who, seventy-three years before the birth of Christ, incited his fellow-gladiators to revolt against their brutal Roman oppressors. For nearly three years he resisted the Roman power, defeating various armies sent against him, but at last he was killed, and his followers dispersed. An American author, Elijah Kellogg, has imagined how Spartacus first addressed his fellow-slaves in this speech, which is a favourite recitation in America.

YE call me chief; and ye do well to call him chief who for twelve long years has met upon the arena every shape of man or beast the broad Empire of Rome could furnish, and who never yet lowered his arm. If there be one among you who can say that ever in public fight or private brawl my actions did belie my tongue, let him stand forth and say it. If there be three in all your company dare face me on the sands, let them come on. And yet I was not always thus—a hired butcher, a savage chief of still more savage men. My ancestors came from old Sparta, and settled among the vine-clad rocks and citron groves of Syrasella.

My early life ran quiet as the brooks by which I sported; and when, at noon, I gathered the sheep beneath the shade, and played upon the shepherd's flute, there was a friend, the son of a neighbour, to join me in the pastime. We led our flocks to the same pasture, and partook together our rustic meal. One evening, after the sheep were folded, and we were all seated beneath the myrtle which shaded our cottage, my grand-sire, an old man, was telling of Marathon and Leuctra; and how, in ancient time, a little band of Spartans, in a defile of the mountains, had withstood a whole army.

I did not then know what war was; but my cheeks burned, I know not why, and I clasped the knees of that venerable man, until my mother, parting the hair from off my forehead, kissed my throbbing temples, and

bade me go to rest, and think no more of those old tales and savage wars. That very night the Romans landed on our coast. I saw the breast that had nourished me trampled by the hoof of the war-horse—the bleeding body of my father flung amid the blazing rafters of our dwelling! To-day I killed a man in the arena; and when I broke his helmet-clasps, behold! he was my friend. He knew me, smiled faintly, gasped, and died—the same sweet smile upon his lips that I had marked when, in adventurous boyhood, we scaled the lofty cliff to pluck the first ripe grapes, and bear them home in childish triumph!

I told the prætor that the dead man had been my friend, generous and brave; and I begged that I might bear away the body, to burn it on a funeral pile, and mourn over its ashes. Ay, upon my knees, amid the dust and blood of the arena, I begged that poor boon, while all the assembled maids and matrons, and the holy virgins they call Vestals, and the rabble, shouted in derision, deeming it rare sport, forsooth, to see Rome's fiercest gladiator turn pale and tremble at sight of that piece of bleeding clay! And the prætor drew back as if I were pollution, and sternly said, "Let the carrion rot, there are no noble men but Romans!" And so, fellow-gladiators, must you, and so must I, die like dogs.

O Rome! Rome! thou hast been a tender nurse to me. Ay, thou hast given to that poor, gentle, timid

shepherd lad who never knew a harsher tone than a flute-note muscles of iron and a heart of flint : taught him to drive the sword through plaited mail and links of rugged brass, and warm it in the marrow of his foe—to gaze unto the glaring eyeballs of the fierce Numidian lion even as a boy upon a laughing girl !

And he shall pay thee back, until the yellow Tiber is red as frothing wine, and in its deepest ooze thy life-blood lies curdled !

Ye stand here now like giants, as ye are. The strength of brass is in your toughened sinews. By to-morrow some Roman Adonis, breathing sweet perfume from his curly locks, shall with his lily fingers pat your red brawn, and bet his sesterces upon your blood Hark ! Hear ye yon

lion roaring in his den ? 'Tis three days since he has tasted flesh ; but to-morrow he shall break his fast upon yours—and a dainty meal for him ye will be ! If ye are beasts, then stand here like fat oxen, waiting for the butcher's knife ! If ye are men, follow me !

Strike down yon guard, gain the mountain passes, and there do as did your sires at old Thermopylæ ! Is Sparta dead ? Is the old Grecian spirit frozen in your veins, that you do crouch and cower like a belaboured hound beneath his master's lash ? O comrades ! warriors ! Thracians ! if we must fight, let us fight for ourselves ! If we must slaughter, let us slaughter our oppressors ! If we must die, let it be under the clear sky, by the bright waters, in noble, honourable battle !

COLUMBUS SEES AMERICA: By WASHINGTON IRVING

In all the stories of the deeds of men, none are more thrilling than those of the first bold adventurers who have sailed into unknown seas and discovered strange lands and peoples. The story of how Columbus discovered America will never be forgotten as long as America lasts and mankind endures upon the mighty continent of our Western world. This story has been told by countless writers, but it is surely a remarkable thing that the best of all the descriptions of this great event in the history of the world is from the pen of an American. Washington Irving was the first great writer born in the land which Columbus discovered. It was while staying at Madrid that he completed a great book on Columbus in 1828, and from this the following passage has been taken :

THE situation of Columbus was daily becoming more and more critical. In proportion as he approached the regions where he expected to find land the impatience of his crews augmented. The favourable signs which increased his confidence was derided by them as delusive, and there was danger of their rebelling and obliging him to turn back when on the point of realising the object of all his labours. They beheld themselves with dismay still wafted outward, over the boundless wastes of what appeared to them a mere watery desert surrounding the habitable world.

There was imminent danger of their breaking forth into open rebellion, and compelling Columbus to turn back. In their secret conferences they exclaimed against him as a desperado, bent, in a mad fantasy, upon doing something extravagant to render him notorious. What obligations bound them to continue on with him, or when were the terms of their agreement to be considered as fulfilled ? They had already penetrated unknown seas, untraversed by a sail, far beyond where man had ever before ventured. How much farther were they to go in quest of a merely conjectured land ? Were they to sail on until they

perished, or until all return became impossible ?

On the other hand, should they consult their safety, and turn back before too late, who would blame them ? Any complaints made by Columbus would be of no weight—he was a foreigner without friends or influence ; his schemes had been condemned by the learned, and discountenanced by people of all ranks. He had no party to uphold him, and a host of opponents whose pride of opinion would be gratified by his failure. Or, as an effectual means of preventing his complaints, they might throw him into the sea, and give out that he had fallen overboard while busy with his instruments contemplating the stars.

Columbus was not ignorant of the mutinous disposition of his crew ; but he still maintained a serene countenance.

They continued on with the same propitious breeze, tranquil sea, and mild, delightful weather. The water was so calm that the sailors amused themselves with swimming about the vessel. Dolphins began to abound, and flying fish, darting into the air, fell upon the decks. The continued signs of land diverted the attention of the crews, and insensibly beguiled them onward.

Eager to obtain the promised pension, the seamen were continually giving the cry of "Land!" on the least appearance of the kind. To put a stop to these false alarms, which produced continual disappointment, Columbus declared that, should anyone give such notice, and land not being discovered within three days afterward, he should thenceforth forfeit all claim to the reward.

The crews now sank into a degree of dejection proportioned to their recent excitement; but new circumstances occurred to arouse them. Columbus, having observed great flights of small field birds going toward the south-west, concluded they must be secure of some neighbouring land. The farther they went, the more frequent and encouraging were the signs of land. Flights of small birds of various colours, some of them such as sing

turning homeward, and abandoning the voyage as hopeless.

Columbus endeavoured to pacify them by gentle words and promises of large rewards; but finding that they only increased in clamour, he assumed a decided tone. He told them that it was useless to murmur; the expedition had been sent by the sovereigns to seek the Indies, and he was determined to persevere until, by the blessing of God, he should accomplish the enterprise.

Columbus was now at open defiance with his crew, and his situation became desperate. Fortunately, the manifestations of the vicinity of land were such, on the following day, as no longer to admit a doubt. Besides a quantity of fresh weeds, such as grow in rivers, they saw a green fish of a kind which keeps about rocks; then a branch of thorn



COLUMBUS ABOUT TO SET OUT FROM PALOS FOR THE DISCOVERY OF THE NEW WORLD

This picture is reproduced from the fine painting by the great Spanish artist, Ricardo Balaca

in the fields, came flying about the ships, and then continued toward the south-west; and others were heard also, flying by in the night. Tunnyfish played about the smooth sea, and a heron, a pelican, and a duck were seen, all bound in the same direction. The herbage which floated by was fresh and green, as if recently from land; and the air, Columbus observed, was as sweet and fragrant as April breezes in Seville.

All these, however, were regarded by the crews as so many delusions beguiling them on to destruction; and when, on the evening of the third day, they beheld the sun go down upon a shoreless ocean, they broke forth into turbulent clamour. They exclaimed against this obstinacy in tempting fate by continuing on into a boundless sea. They insisted upon

with berries on it, and recently separated from the tree, floated by them; then they picked up a reed, a small board, and, above all, a staff artificially carved.

All gloom and mutiny now gave way to sanguine expectation, and throughout the day each one was eagerly on the watch, in hopes of being the first to discover the long-sought-for land.

In the evening, when, according to invariable custom on board of the admiral's ship, the mariners had sung the "Salve Regina," or vesper hymn to the Virgin, he made an impressive address to his crew. He pointed out the goodness of God in thus conducting them by soft and favouring breezes across a tranquil ocean, cheering their hopes continually with fresh signs, increasing as their fears augmented, and

thus guiding them to a promised land.

The greatest animation prevailed throughout the ships; not an eye was closed that night. As the evening darkened, Columbus took his station on the top of the castle, or cabin, on the high poop of his vessel, ranging his eye along the dusky horizon, and maintaining an intense and unremitting watch. About ten o'clock he thought he beheld a light glimmering at a great distance. Fearing his eager hopes might deceive him, he called to Pedro Gutierrez, gentleman of the king's bed-chamber, and inquired whether he saw such a light. The latter replied in the affirmative.

Doubtful whether it might not yet be some delusion of the fancy, Columbus called Rodrigo Sanchez, of Segovia, and made the same inquiry. By the time the latter had ascended the round-house the light had disappeared. They saw it once or twice afterward, in sudden and passing gleams, as if it were a torch in the barque of a fisherman, rising and sinking with the waves, or in the hand of some person on shore, borne up and down as he walked from house to house.

So transient and uncertain were these gleams that few attached any importance to them. Columbus, however, considered them as certain signs of land; and, moreover, that the land was inhabited. They continued their course until two in the morning, when a gun from the

Pinta gave the joyous signal of land. It was first descried by a mariner named Rodrigo de Triana, but the reward was afterward adjudged to the admiral for having previously perceived the light. The land was now clearly seen about two leagues distant; whereupon they took in sail and laid-to, waiting impatiently for the dawn.

The thoughts and feelings of Columbus in this little space of time must have been tumultuous and intense. The great mystery of the ocean was revealed; his theory, which had been the scoff of sages, was triumphantly established; he had secured to himself a glory durable as the world itself.

It is difficult to conceive the feelings of such a man at such a moment, or the conjectures which must have thronged upon his mind as to the land before him, covered with darkness. That it was fruitful was evident from the vegetables which floated from its shores.

He thought, too, that he perceived the fragrance of aromatic groves. The moving light he had beheld proved it to be the residence of man. A thousand speculations must have swarmed upon him, as, with his anxious crews, he waited for the night to pass away, wondering whether the morning light would reveal a savage wilderness, or dawn upon spicy groves, and glittering fanes, gilded cities, and all the splendours of Oriental civilisation.

THE SONG OF THE KETTLE

ONE of the most beautiful stories by Charles Dickens is "The Cricket on the Hearth."

It is a Christmas tale, and it was the pleasing fancy of the author to suggest that the little friendly cricket which haunted the hearth of the Peerybingles was always chirruping loudly when things were going well, but was silent in times of sadness or sorrow. The story begins with a very cosy scene, the kettle steaming on the hob, and the cricket chirruping on the hearth, as if in competition. We give here the song of the kettle.

THAT this song of the kettle's was a song of invitation and welcome to somebody out of doors, to somebody at that moment coming on towards the snug, small home and the crisp fire, there is no doubt whatever. Mrs. Peerybingle knew it perfectly, as she sat musing before the hearth. "It's a dark night," sang the kettle, "and the rotten leaves are lying by the way; and above, all is mist and darkness, and below, all is mire and clay; and there's only one relief in all the sad and murky air; and I don't know that it is one, for it's nothing but a glare of deep and angry crimson,

where the sun and wind together set a brand upon the clouds for being guilty of such weather; and the wildest open country is a long dull streak of black; and there's hoar-frost on the finger-post, and thaw upon the track; and the ice it isn't water, and the water isn't free; and you couldn't say that anything is what it ought to be; but he's coming, coming, coming!"

The kettle had had the last of its solo performance. It persevered with undiminished ardour; but the cricket took first fiddle, and kept it. Good heaven, how it chirped! Its shrill, sharp, piercing

voice resounded through the house, and seemed to twinkle in the outer darkness like a star.

There was an indescribable little trill and tremble in it, at its loudest, which suggested its being carried off its legs, and made to leap again by its own intense enthusiasm. Yet they went very well together, the cricket and the kettle. The burden of the song was still the same; and louder, louder, louder

still, they sang it in their emulation. Until at last they got so jumbled together, in the hurry-scurry, helter-skelter, of the match, that whether the kettle chirped and the cricket hummed, or the cricket chirped and the kettle hummed, or they both chirped and both hummed, it would have taken a clearer head than yours or mine to have decided with anything like certainty.

—CHARLES DICKENS.

THE DAY OF THE COMET—By H. G. WELLS

Many writers have attempted to describe great scenes of ruin, such as Mr. H. G. Wells, a famous living novelist, has succeeded in doing in his novel, "In the Days of the Comet," published by The Century Co., New York. Comets have always been associated with ideas of evil to the earth, though we know there is little fear of our world coming to grief by one of these great bodies. But the novelist is entitled to use, for the purposes of his story, the idea of mankind being destroyed by the earth passing through the poisonous gases of a comet. Mr. Wells gives us a picture of what he imagines might then happen, told with a genuine power of vision which gives an impression of one great universal disaster.

EVERYWHERE on earth that day, in the ears of everyone who breathed, there had been the same humming in the air, the same rush of green vapours, the streaming of shooting stars.

The Hindoo had stayed his morning's work in the fields to stare and marvel and fall; the blue-clothed Chinaman fell head foremost athwart his midday bowl of rice; the Japanese merchant came out from some chaffering in his office amazed, and presently lay there before his door; the evening gazers by the Golden Gates were overtaken as they waited for the rising of the great star. This had happened in every city of the world, in every lonely valley, in every home and house and shelter, and every open place.

On the high seas the crowding steamship passengers gaped and marvelled, and were suddenly terror-stricken, and struggled for the gangways, and were overcome; the captain staggered on the bridge and fell; the stoker fell headlong among his coals; the engines throbbed upon their way untended; the fishing craft drove by without a hail, with swaying rudder, heeling and dipping.

The great voice of material Fate cried "Halt!" And in the midst of the play the actors staggered, dropped, and were still. In New York that very thing occurred. Most of the theatrical audiences dispersed; but in two crowded houses the company, fearing a panic, went on playing amidst the gloom, and the people, trained by many a previous disaster, stuck to their seats. There they sat, the back rows only

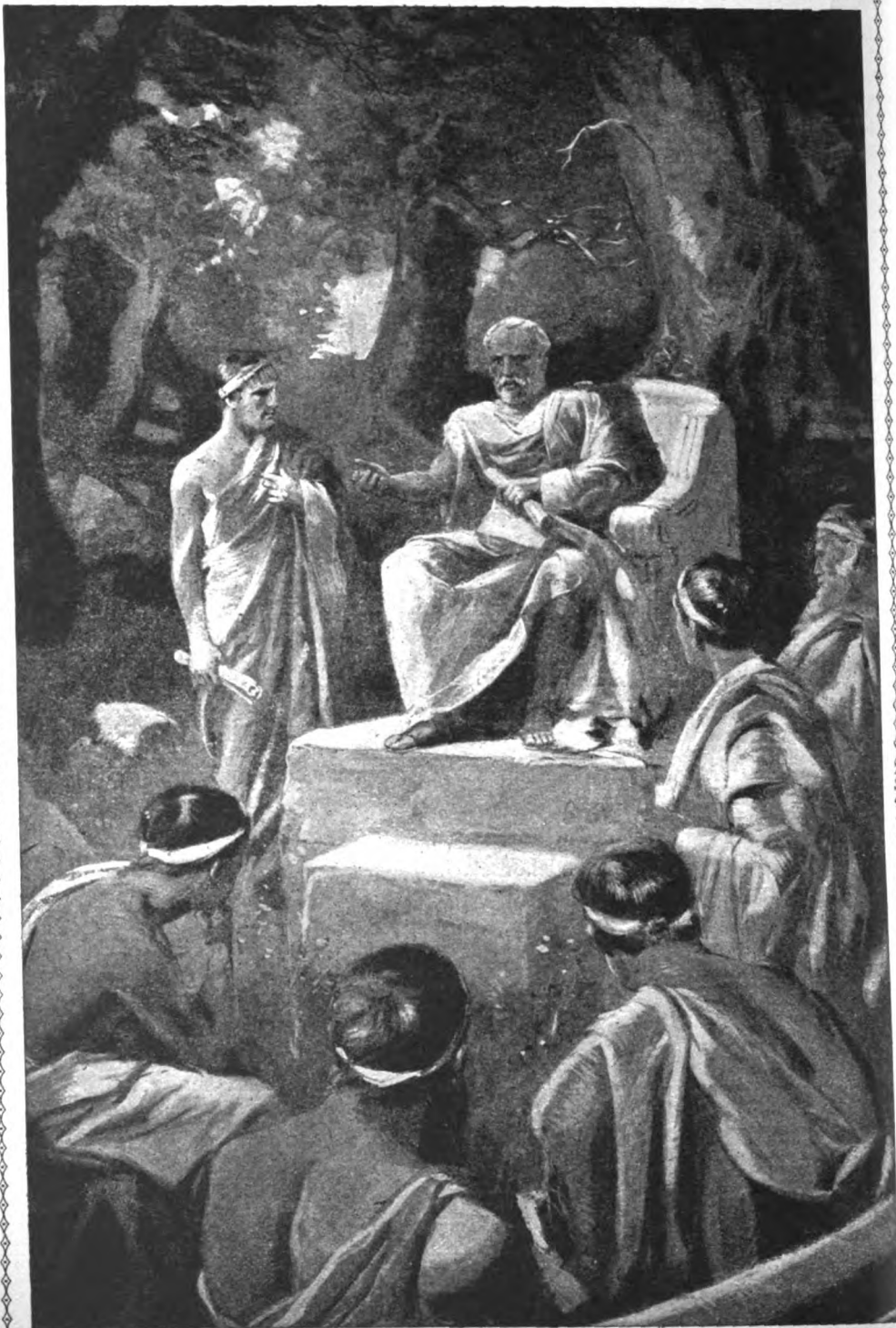
moving a little, and there, in disciplined lines, they drooped and failed, nodded, and fell forward or slid upon the floor.

In London it was night; but in New York, for example, people were in the full bustle of the evening's enjoyment. In Chicago they were sitting down to dinner; the whole world was abroad. The moonlight must have illuminated streets and squares littered with crumpled figures, through which such electric cars as had no automatic brakes had ploughed on their way until they were stopped by the fallen bodies.

People lay, in their dress clothes, in dining-rooms, restaurants, on staircases, in halls. Men gambling, men drinking, thieves lurking in hidden places, were caught, to arise with awakened mind and conscience amidst the disorder of their sin. America the comet reached in the full tide of evening life, but Britain lay asleep. But Britain did not slumber so deeply but that she was in the full tide of what may have been battle and a great victory. Up and down the North Sea her warships swept together like a net about their foes.

The Hungarian, the Italian peasant, yawned, and thought the morning dark, and turned over to fall into a dreamless sleep; the Mohammedan world spread its carpet and was taken in prayer. And in Sydney, in Melbourne, in New Zealand, the thing was a fog in the afternoon, that scattered the crowd on race-courses, and stopped the unloading of shipping, and brought men out from their afternoon rest to stagger and litter the streets.

PLATO TEACHING IN HIS OPEN-AIR SCHOOL



Not far from Athens was a beautiful plantation that was called the Academy, after one of the Greek heroes, Academus, who had once owned the place. Here, amid the plane and olive trees, Plato gathered his disciples and held his open-air school, and in this picture we see him teaching his followers, many of whom were old men. After Plato died, the Academy was for many centuries still used as a place in which philosophers taught their disciples.



HOW REGULUS WENT BACK TO DIE

FOR many years the citizens of ancient Rome had been extending their domains, until in the year 270 B.C. they ruled over almost all Italy. The Romans then crossed over to Sicily, and there came into conflict with another race of brave and adventurous conquerors called Carthaginians.

A terrible struggle for the mastery now began. At first the Romans were victorious on land and sea. Elated with success, they decided to carry the war into Africa, and a large army, under Attilius Regulus, landed and swept all before them, until they came in sight of Carthage. Then, indeed, the prosperous Carthaginians roused themselves to defend their hearths and homes, and utterly vanquished the Romans. Regulus and a host of Romans were led captive into Carthage.

The war, however, went on until after fourteen years the losses of both sides were so great that the Carthaginians hoped that peace could be made. They summoned Regulus, the captive general, before them, and said :

"We are weary of the war, and are sending an embassy to try to arrange a peace and an exchange of prisoners with your senators at Rome. Go you to Rome and prevail on them to agree. But first give us your word as a Roman that, if you fail, you will return to captivity here."

When the embassy reached the gates of Rome, Regulus stood still and cried :
"No longer am I either a citizen

CONTINUED FROM 5386

or a senator of this great city ; neither will I enter within her walls, nor will I take my seat in her noble Senate."

On learning of this resolve, the Senate sent certain of their number to confer with Regulus in the presence of the embassy as to whether they should yield. But the undaunted Regulus spoke out courageously :

"To no purpose is it to ransom prisoners who have ignobly yielded while they still bore weapons in their hands ; let them be left to perish ; let war with Carthage go on till Carthage be conquered."

His counsel prevailed, the unsuccessful embassy returned home, and with them, true to his word of honour, went back the bold, resolute patriot, though he knew that he would receive little mercy at the hands of his captors, whose hopes of peace and returned prosperity he had so stubbornly overthrown.

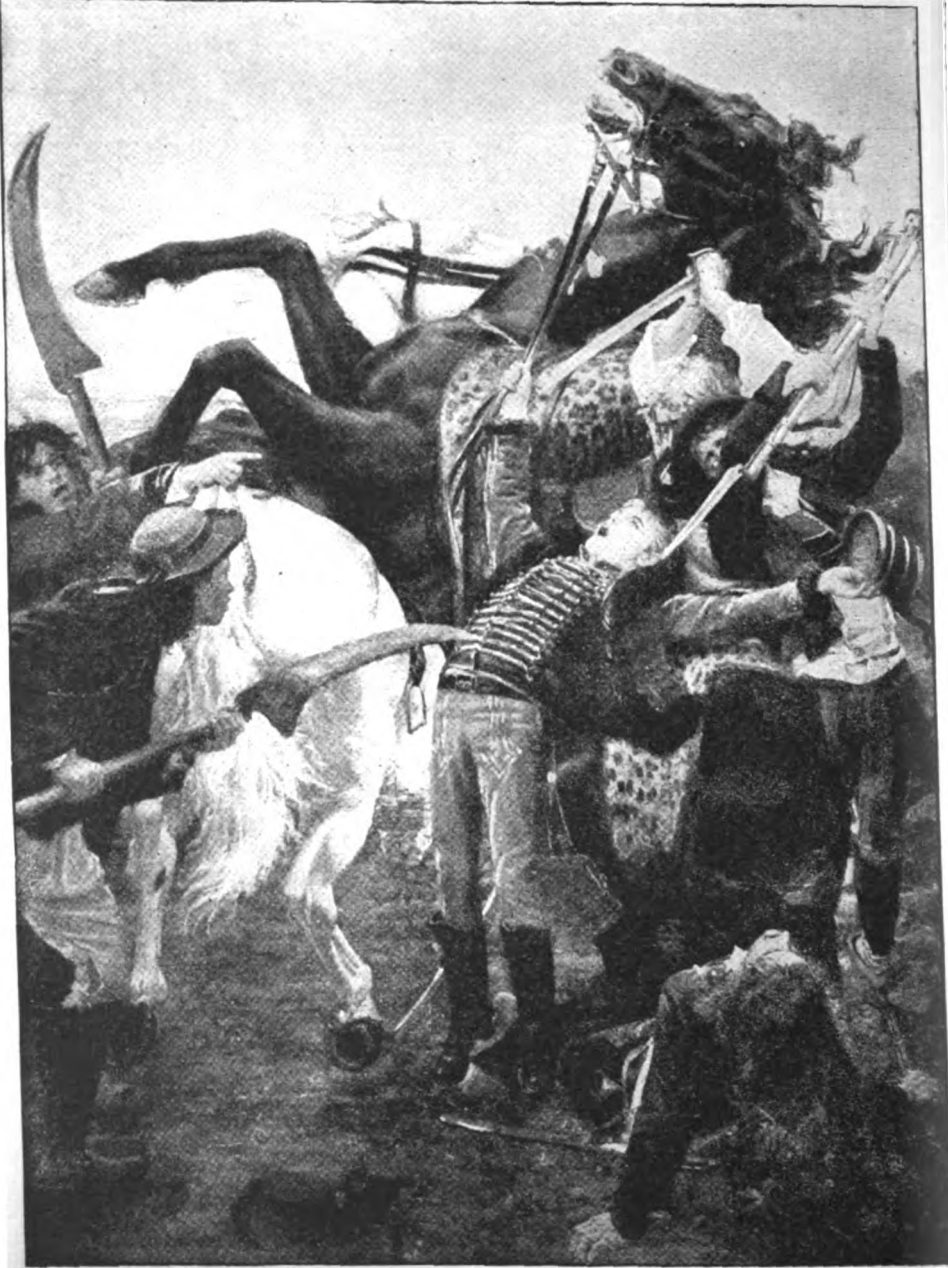
Tiber's banks were crowded with his fellow-countrymen as he embarked on the ship that was to bear him across the sea. It was the most glorious moment of his life as he stood on the ship bidding farewell for ever to those Roman senators, to whose wavering courage he had given fresh life.

And so Regulus entered Carthage once more, and his counsel was repeated to the cruel Carthaginians. They had not enough nobility of spirit to reverence a brave patriot, and they devised horrible tortures and put him to a most cruel death.

THE BOY WHO DIED FOR THE REPUBLIC

IN the terrible times of the French Revolution many acts of heroism were performed by both Royalists and Republicans. A striking instance of patriotism on the part of a boy of only

"Long live the king!" With bayonets and knives pointing to his breast, the brave boy shouted, "Long live the French Republic! For her I die with joy," and the next moment fell pierced



thirteen, named Joseph Barra, is recorded. In the province of La Vendée, where the peasants fought for the king, a band one day surrounded Barra and insisted that he should shout

with many wounds. His body was taken to the Pantheon, the burial place of heroes, at Paris, where his remains lie to-day with those of Voltaire, Rousseau, and Victor Hug

CONTINUED ON PAGE 5615.

CHICAGO, THE WONDER CITY

TODAY, as you have doubtless heard, Chicago is the fourth largest city in the world, with a population of about 2,000,000, and is still growing very rapidly. It is one of the greatest railroad centres in the world and in enterprise, industry and power to surmount obstacles is not behind any city in the world. Yet hardly a hundred years ago the spot on which Chicago stands was a stretch of wilderness with only a house or two to indicate the presence of human beings. Apparently a settlement of Indians existed here in 1671, when it was visited by a fur trader, Nicholas Perrot. Joliet and Marquette visited it a little while later, and La Salle also stopped here. The French seem to have built a little fort here, but it did not continue long. The United States in 1803 built Fort Dearborn at what is now the corner of Dearborn Street and Michigan Avenue, but the fort was destroyed by the Indians in 1812. It was rebuilt, but in 1836 was finally abandoned.

At this time the number of inhabitants of the little town which was growing up about the fort was hardly 4,000. Soon the population began to grow rapidly and it is now the second city in size in the United States. There has always been a spirit of hopefulness about the city which the great fire of 1871 did not check. On October 7 of that year a cow kicked over a lamp in a stable on the outskirts of the city. The blaze grew beyond the control of the fire department and swept like a horrible monster, devouring the wooden buildings which then composed the greater part of the city. About 17,000 buildings were burned and nearly 100,000 persons were left homeless. The total loss was estimated at \$190,000,000. Undismayed, the citizens organised committees to relieve the distress, and distributed with care the contributions sent from other parts of the United States and from Europe.

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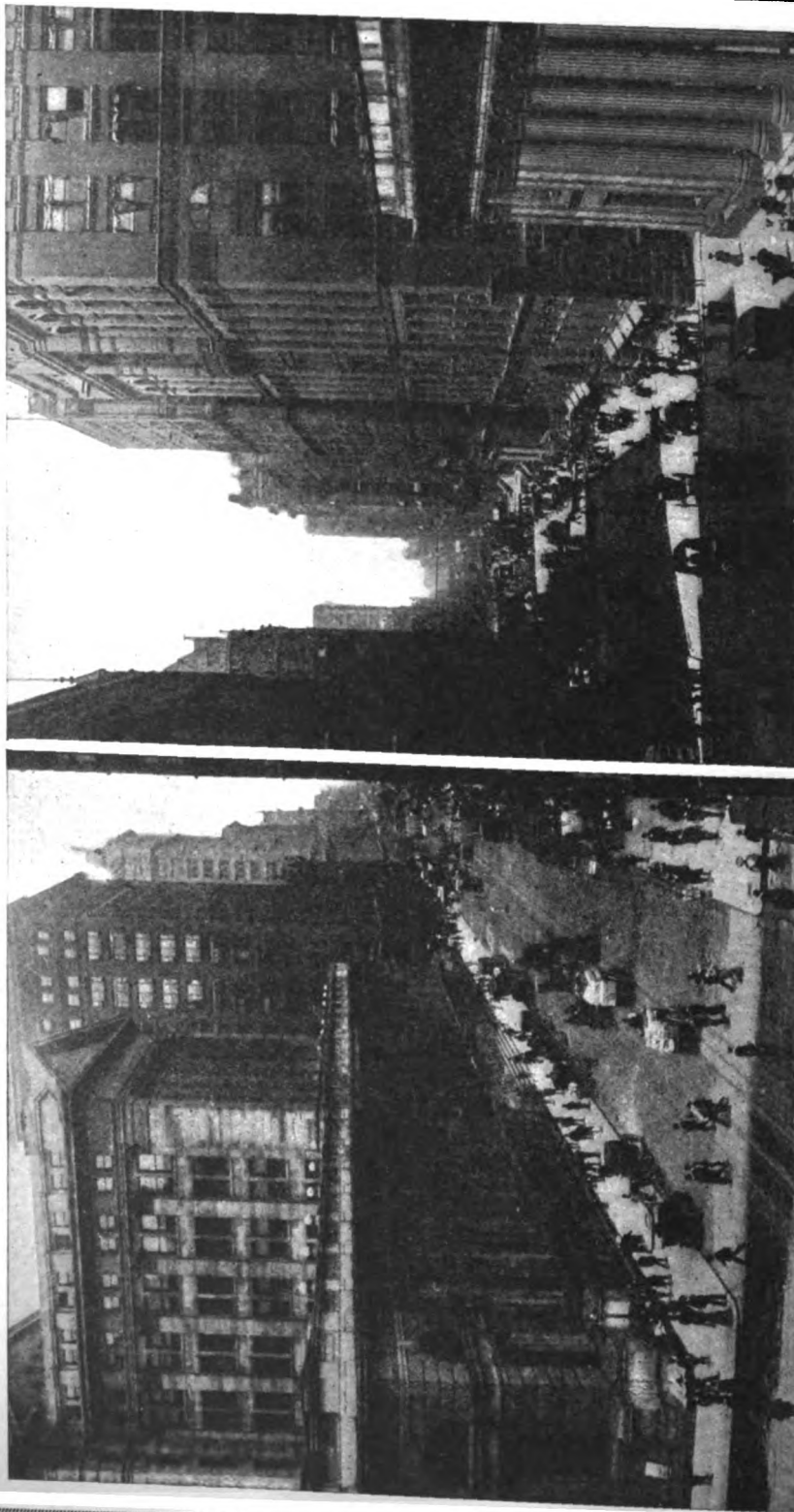
They determined to build the new city in such a manner that such a calamity could never occur again, and ten years later a wonderful city of stone had replaced the old one of wood. Chicago had risen like a phoenix from the flames. The commercial growth of the city has been wonderful. It is the greatest grain market and the great provision market in the world. To its stockyards come hundreds of thousands of animals and Chicago meat is sent to every portion of the world. The city is also the great lumber centre, though with the continued destruction of the forests which gave her this position, she will not be able long to hold that rank.

The great World's Fair, celebrating the four hundredth anniversary of the discovery of America by Columbus, was held in Chicago in 1893, a year late, to be sure. The wonderful "White City" was built on the shores of Lake Michigan, close to the spot where Perrot had stood more than two hundred years before. The people of Chicago were determined to make the Fair a success and they succeeded.

Today the spirit of the citizens stands for growth. The city has one of the best public school systems in the country; provides wide parks and playgrounds for its children; is making a determined effort to stamp out the "White Plague;" and is struggling for cleanliness and sanitation. Moreover the citizens are making a determined effort to secure better government, and to control the men they choose to represent them.

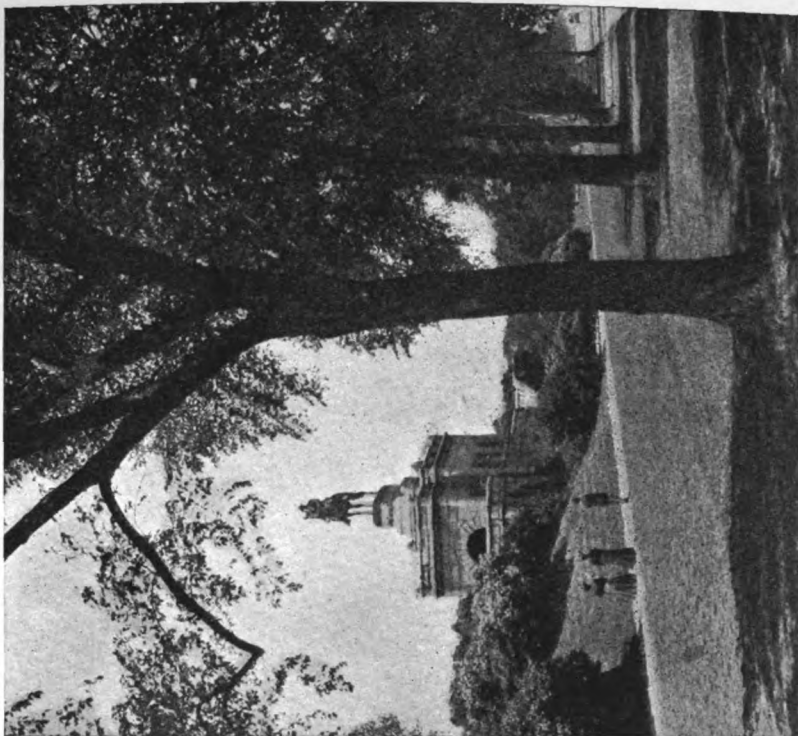
Nor have the means of culture been neglected. For a long time Chicago had one of the best orchestras in the United States. It encourages artists, and the exhibitions of pictures held there are often interesting. It contains some of the most beautiful public buildings in the United States and altogether the city seems certain to continue its wonderful progress.

IN THE HEART OF A GREAT CITY

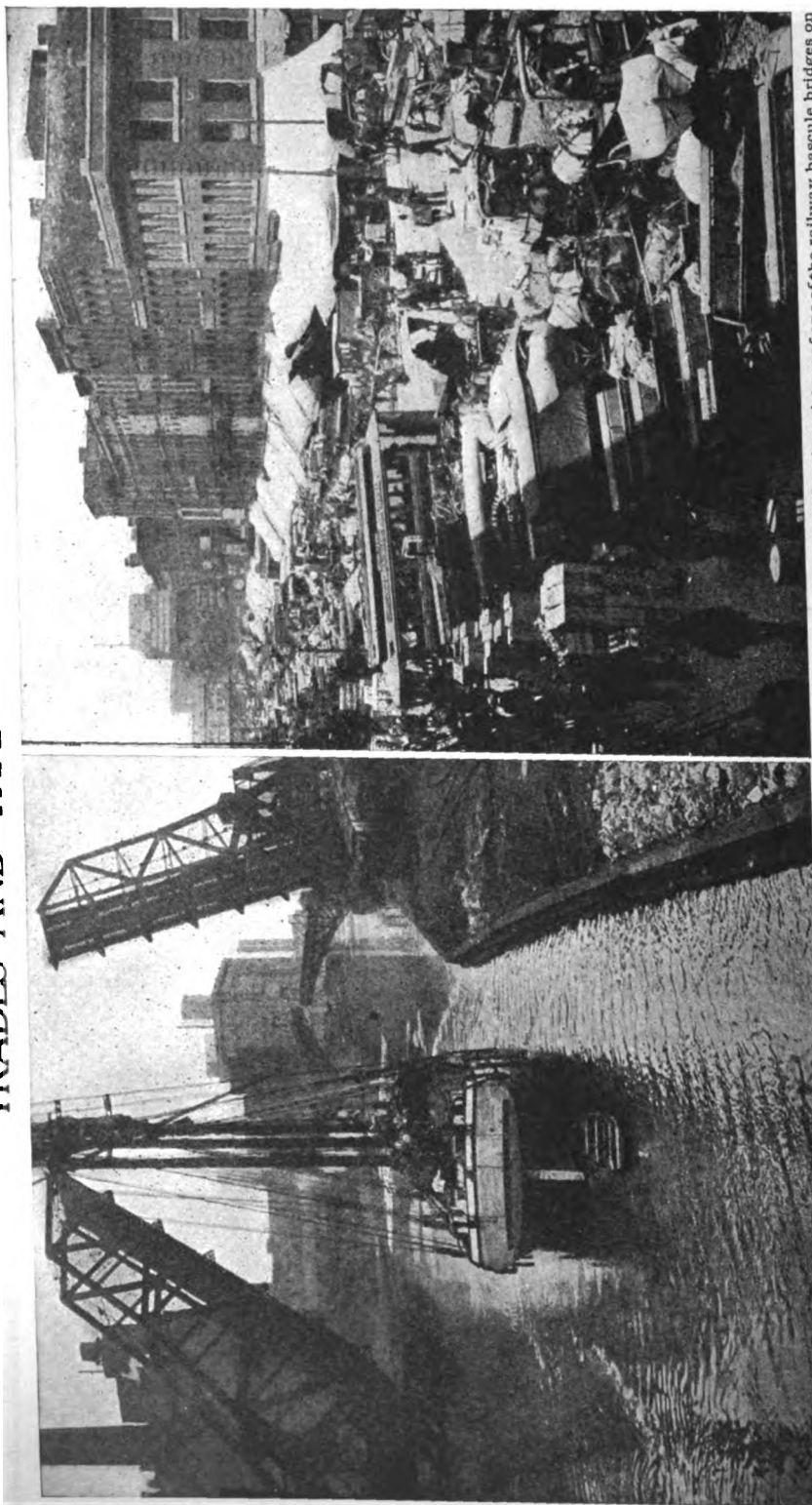


Here we see two streets in the busiest part of the city. To the left is Dearborn Street, with the great new Post Office across the way. To the right is La Salle Street, the very heart of the financial district. The building with the fluted columns is the Board of Trade. It is in these streets that Chicago's great commercial enterprises centre.

THE PEOPLE'S PLAYGROUNDS

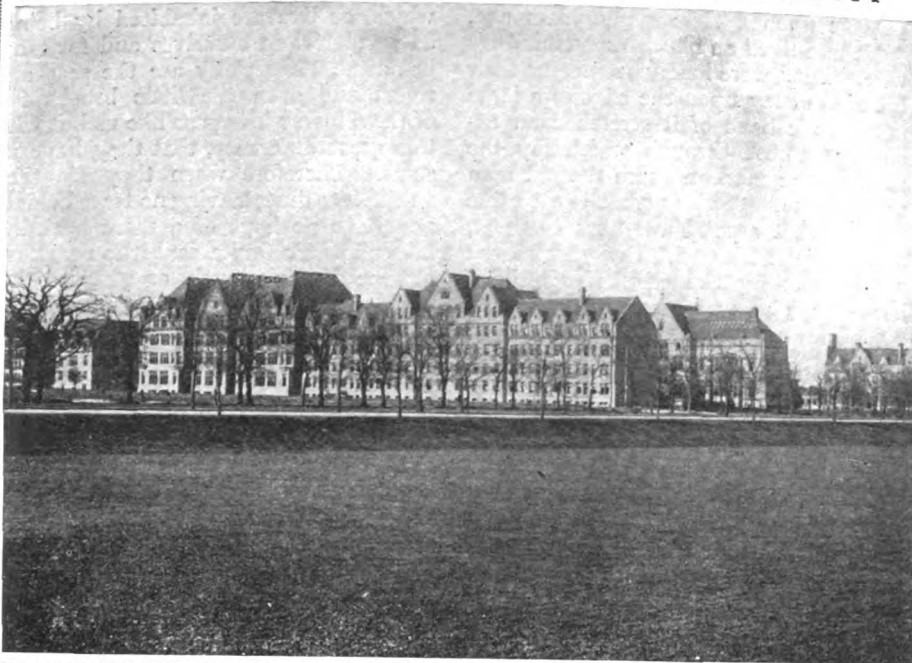


TRADES AND TRAFFIC IN CHICAGO

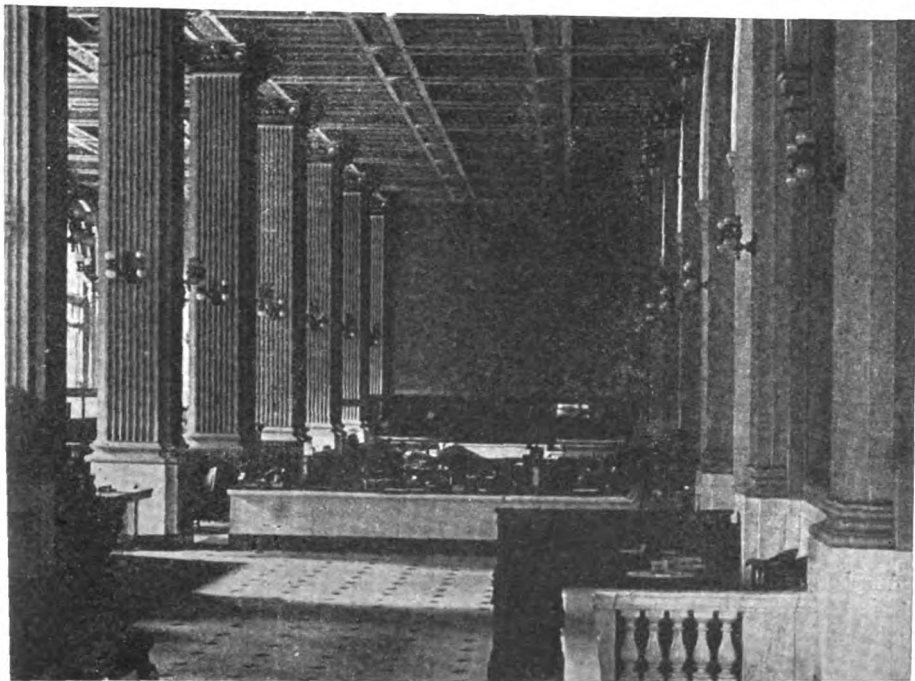


Chicago is one of the largest commercial cities in the world, so it must have every facility for forwarding its trade. Here is a picture of one of the railway bascule bridges on the Chicago river which opens up to allow the tall masted schooners to pass through. On the right we see the Produce Market from which comes the food to supply this mighty city.

HALLS OF LEARNING AND OF WEALTH



Here is a picture of the University of Chicago, showing the campus and a few of its many buildings. This college is one of the largest and most progressive in the country, and has a very fine library of nearly four hundred thousand volumes, which is made good use of by the thousands of students who attend the college every year.



Here we see a hall in the interior of the Chicago First National Bank. This is perhaps the finest banking building in the world. Chicago — a city of over 2,000,000 people, with its immense commercial enterprises, necessarily does one of the largest banking businesses of any city in the world.

THE STORY OF A WATER NYMPH

ONCE upon a time many years ago, there lived an old fisherman and his wife. They were lonely people, for their bit of land lay upon the edge of a large lake, while back of it stretched an enchanted forest through which lay the road to the market where the old man sold his fish. To their great joy it came to pass that a child was born to them, a beautiful little girl. One day as the mother sat by the edge of the lake, her baby in her arms, the child, attracted by some beautiful thing in its clear depths, leaped forward into the water, sank instantly below its surface and was gone. That same evening, while the parents were mourning the loss of their child, a tap came at the cottage door and a lovely little girl about three or four years of age stood upon the threshold.

When the girl was about eighteen years old, there came through the enchanted forest to the old fisherman's hut a wonderful knight named Hildebrand. He had made his way through the gloom and mysteries of the forest with great difficulty. Horrible little dwarfs had tried to frighten him away; a great tall man in white had continually blocked his path.

Hardly had the knight reached the shelter of the cottage when a great storm came up which lasted several days. The waters of the lake rose to such an extent that the little promontory where the old couple and their foster daughter lived became an island and all passage out into the world beyond was cut off. During this time the lovely Undine and the handsome knight were very much together, and became very fond of each other. One night while the storm was still raging a priest, who had been driven to their shore by the fury of the waves, sought the protection and shelter of the little cottage. The good father soon became aware of the attachment of the young couple and before the evening was over it was arranged, much to the joy of her foster parents, that Undine and the knight should be joined in holy wedlock.

Now it happens, as perhaps you've heard, that the air and elements among

which we live are inhabited by beings as wonderful as ourselves and far more beautiful. Especially are the seas and rivers and even the little brooks full of these lovely beings so like us but with this great difference, that they have no souls. Therefore when they die they vanish into dust, leaving no trace behind, and have no hope of a more beautiful after life. To find a soul it is necessary for one of these lovely creatures to become united to one of our race, and it was for this purpose that Undine's father, a great prince of the Mediterranean Sea, sent this little daughter to the fisherman's cottage that night so long ago.

When Hildebrand became aware of the fact he was at first dismayed, but Undine was so lovely, and indeed since the night of the wedding so changed, so gentle, so biddable, that he dismissed his fears, and clasping her to him, vowed eternal love and protection. The morning after the wedding found the sun shining gloriously and the waters so far receded that there was no longer need of delay.

Great was the rejoicing at the arrival of the knight and his beautiful bride. There was one however who could not rejoice. This was Bertalda, foster child of the Duke and the Duchess of the Imperial City; for she it was who had sent the knight into the enchanted forest as a test of his love for her. So there was, as you can see, nothing but jealousy in her heart for the young bride who had won his heart at the other end of the dark forest. For Bertalda, however, Undine soon felt the greatest affection, and when she discovered from her uncle Kuhleborn, a powerful water-sprite, who inhabited the waters of that region and with whom she had frequent intercourse, that Bertalda was no other than the lost daughter of the old fisherman and his wife, her joy knew no bounds. Thinking in her innocent heart to give a delightful surprise, she planned a dinner at the end of which the secret of Bertalda's birth, which up to that time had remained a mystery, was to be revealed. At the appointed time

the announcement was made, but Bertalda became so enraged that the Duke and the Duchess withdrew their protection and even her own poor parents refused to receive her.

In the costume, therefore, of a fisher maiden she was encountered by Hildebrand and Undine as they drove out of the city toward Castle Ringoletten, situated near the source of the Danube River. At sight of Bertalda's misfortune Undine was full of sympathy and would hear of nothing but that Bertalda should accompany them on their journey and they should share all things as sisters in love and affection. For a time all went well at Castle Ringoletten, but gradually Bertalda lost her suddenly acquired humility; she became again the proud and haughty lady, and encouraged by the admiration which Hildebrand no longer strove to conceal, she frequently assumed the position which Undine as rightful lady of the castle should have held. Kuhleborn, ever watchful for the welfare of his niece, became aware of her unhappiness and by his frequent visits and sudden appearances in the castle frightened Bertalda and added to the knight's growing aversion to his gentle wife. At last, in order to prevent the reappearance of her mysterious relative, Undine ordered the great fountain in the courtyard of the castle to be sealed up. For a time again all went well, Hildebrand felt a return of affection for his trusting wife, and secure in their new found happiness, Undine suggested a much talked of trip down the Danube as far as Vienna. She had often warned her husband against showing any trace of anger or displeasure toward her while on the water, but no sooner had they entered the domain of the watchful Kuhleborn than they were tormented by his impish tricks. Undine had constantly to rebuke him for his insolence and their pleasure was completely spoiled. Kuhleborn's mischievous pranks became more and more violent until in a flash of rage Hildebrand commanded his trembling wife to return to her mysterious kindred of the sea and trouble him no more.

The Lord of Ringoletten and Bertalda

returned alone to the castle and for some time lived in mourning and great sorrow, thinking only of their love for Undine and forgetting entirely their feeling for each other. But as often happens, gradually the knight's sorrow grew less. He thought less often of Undine and more often and with still greater fondness of Bertalda. At last the nuptial day was set and Father Heilmann was summoned to perform the ceremony. Upon receiving the summons the priest immediately set out for the castle, not indeed to perform the marriage rite, but if possible to prevent it, for Undine had appeared to him in a dream imploring him to prevent the marriage, and thus to save Hildebrand's life, for she was still alive. In spite of Father Heilmann's advice, preparation for the coming festival went on according to arrangement, and indeed all might have been well had not Bertalda bemoaned the fact that the fountain, from which such healing waters used to flow, had been sealed up. Hardly had she uttered the words, when, as if impelled by some strange power within, the stone rolled away, and from the opening of the fountain rose a female figure draped in white. Weeping bitterly and wringing her slender hands, the sorrowful figure glided silently through the courtyard and up the stairs to the knight's own room, where he stood lost in gloomy melancholy. "They have opened the spring and you must die," she said very gently. Drawing him to the couch, she laid her lovely head against his breast and encircling him with her arms she wept and wept until he too began to weep, and finally exhausted sank back upon the pillows dead. "I have wept him to death," she said to a group of maidens as she passed out.

They buried him in a little country churchyard near the castle. In the funeral procession was a white-robed figure that wept unceasingly. When the mourners knelt it knelt too, but when the rest arose the white figure had vanished and in its place gushed forth a little silver streamlet that gradually encircled the knight's grave and continues to do so to this very day.

THE FABLES OF ÆSOP THE SLAVE

THE LION AND THE DEER

A DEER who was being hunted was so nearly caught by the dogs that he rushed into a cave in the hill-side in order to hide.

No sooner, however, had he entered than he saw a huge lion crouched at the



farther end of the cave. The lion sprang upon the unfortunate deer and killed him.

Just before he died the deer said :

"How unlucky I am! I came into this cave to escape from the dogs and have fallen into the jaws of the lion."

Don't jump out of the frying-pan into the fire.

THE FOX AND THE ASS

AN ass one day found a lion's skin, and, dressing himself in it, he went about the fields and woods frightening all the other animals almost out of their lives.

Presently he met a fox, and, wanting to frighten him, too, he not only



rushed at him very fiercely, but he tried to imitate the roaring of the lion.

"Sir," said the fox, "if you had only held your tongue I might have taken you for a lion as the others did; but now that I hear you bray like a donkey, I know quite well who you are."

Our characters are often shown by what we say as well as by what we do.

THE WASPS IN THE HONEY-POT

A MAN one day hung a jar in his garden containing a little honey. There were a great many wasps about at the time, and nearly every one crawled into the jar to get the honey. There they got their legs and wings



so sticky and smeared with the honey that they were all stuck together, and only a few of them succeeded in getting out and flying away. All the rest stayed in the jar, and in a short time died.

If we get into bad habits it is very difficult to get out of them.

THE FAT AND THE LEAN FOWLS

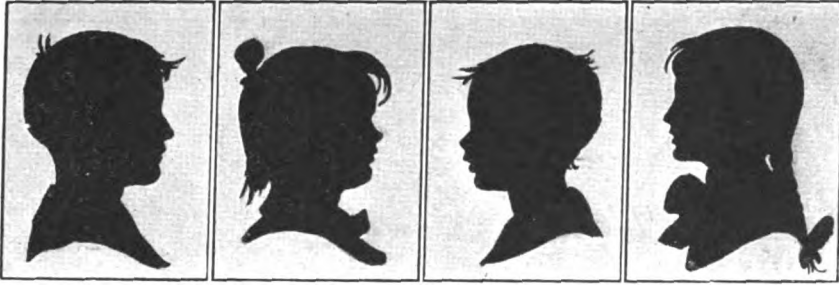
ONCE upon a time there were a quantity of fowls living together, in a yard. Some of them were very fine and fat, while others were thin and ill-looking. The fat ones were often making fun of the lean ones, calling them starvelings and skeletons and other names.



One day the cook was ordered to dress several fowls for dinner, and to be sure that she took the best in the yard. The result was that the fat fowls were caught and cooked, while the thin ones were left; so that in the end the fat fowls wished that they had been thinner.

Never despise people who are not so well off as yourself, who may be better than you.

THE NEXT STORIES BEGIN ON PAGE 5651



MAKING AN OUTLINE PORTRAIT

CONTINUED FROM PAGE 5458.

IN the days of long ago, before photography was invented, our grandfathers and grandmothers used to have portraits of themselves taken sideways. They were what were known as silhouette portraits, and they were not taken with a camera, but were cut out of thin black paper, and stuck upon a white card. The word *silhouette* comes from the name of Monsieur Etienne de Silhouette, a French Minister of Finance in 1759, who was thought to be very mean, and it was given to this kind of portrait because it consists of the mere outline, and is quite mean, or meagre, in detail. Until a few years ago men might often have been seen in the streets of Boston and other big cities who, for a penny, would cut out a silhouette portrait of anyone who cared to stand before them for a few minutes. These portraits were about the size of a carte-de-visite photograph, and were often very good likenesses. Of course, these portraits were more or less accurate as side views of the face, according to the skill of the man who cut them out. If he had much artistic ability they were good likenesses; if not, they were sometimes very poor. But in still earlier days, when silhouette portraits were fashionable and popular, they used to be done in a more scientific way. The person whose portrait was to be taken, sat sideways before a screen, with a light on a table on the other side of him, and in this way a clear shadow was thrown upon the screen, which gave a perfect portrait if the light and sitter were arranged properly.

Then the outline would be traced upon the screen, and from this it was, by mechanical means, transferred, on a small scale, to a sheet of special black paper, cut out, and mounted on card. Many of these old silhouette portraits have come down to us. There is a famous one of

Edward Gibbon, the historian, which gives not only his face, but his whole figure, and he considered it the best of all the portraits of himself that had ever been drawn. There is also a famous silhouette portrait of Robert Burns, the Scottish poet.

Now, any clever boy or girl can, with a little care, make silhouette portraits of his or her friends. It is not necessary to have an elaborate screen such as the old silhouette portrait makers used; all we need do is to fasten a sheet of paper on a flat wall, put the sitter near it, with a good light of some kind on a table, placed in such a way as to throw a shadow of our



DRAWING A SILHOUETTE PORTRAIT

friend upon the paper. Then, with a pencil, we draw carefully round the outline of the shadow, and afterwards cut it out. We may use paper that is black on one side and white on the other, drawing the outline of the face on the white side, and sticking the portrait down with the black side up. Or we may draw the shadow-portrait on white paper, cut it out, and then, using it as a pattern, make a copy in black paper. The picture on this page shows how a person should sit to have his portrait taken in silhouette, and at the top of the page are some specimen silhouette portraits. The sitter should, of course, sit perfectly still while the outline of the shadow is being drawn, and if necessary the head may be supported in some way so that the shadow may remain perfectly still.

Silhouette portraits must show the face sideways, as a front view would give nothing at all distinctive to indicate whose the portrait was; whereas, when the nose and chin are seen, we have the likeness of a person. In arranging the light, we should be careful to place it well back on the table, so that there may be no chance of it being knocked over.

ROBIN HOOD AND HIS MERRY MEN

A LITTLE PLAY FOR THE SCHOOLROOM



THIS play can be acted in a garden. If acted out-of-doors, instead of having the curtain lowered, the actors disappear among the trees.

COSTUMES

Robin Hood, Allan-a-dale, and Little John all wear peaked hats with quills, green or brown tunics, and long stockings with pointed shoes, each carrying bow and arrows and Robin Hood wearing a horn and sword; Friar Tuck, in a monk's habit; Maid Marian, in a short dress with hanging sleeves, and Rosamund, in a close-fitting gown with hanging sleeves; Simon, in a long, loose gown trimmed with fur, and a low, soft hat, and carrying money-bags.

CHARACTERS

ROBIN HOOD. LITTLE JOHN. FRIAR TUCK.
ALLAN-A-DALE. MAID MARIAN. SIMON
OF LINCOLN. ROSAMUND, Simon's step-
daughter).

Scene: The Forest of Sherwood. Wrapped in cloaks, Friar Tuck and Little John, his hat, bow and arrow, beside him, are lying asleep under a tree. Allan-a-dale is keeping watch.

ALLAN: The sun is up. Hey, there! Awake, my merry comrades.

Pokes them with his bow.

FRIAR: Good-night!

sleepily

ALLAN: Wake, rouse thyself; 'tis late! Good-night, forsooth; and thou hast slept without stirring, the last four hours!

Pokes him with his foot. Friar Tuck gets up and rubs his eyes, yawning. Allan pokes Little John, who leaps to his feet and seizes Allan by his throat.

JOHN: Ha. varlet! I've got thee.

ALLAN: Thou'rt a pretty fellow to rouse! Dost take me for an assassin?

JOHN: 'Twas an evil dream I had. Thy pardon, comrade. Ha, here comes our liege lady, Maid Marian!

Enter Maid Marian through the trees at back. Little John puts his arrows on his back.

MAID: Good-morrow, friends! Now let us make ready the breakfast.

ALLAN: There yet remains some of the haunch of venison, lady.

MAID: Bring it hither!

Allan goes out among bushes on left. Little John and Friar Tuck clear leaves from ground at foot of tree.

FRIAR: There, 'tis well!

JOHN: And here comes the breakfast.

Allan comes back with meat on a wooden platter, wine in a horn cup, and bread. He puts them on ground. Singing heard in distance.

MAID: Listen! 'Tis Robin Hood.

Robin Hood comes in from the back, and presents some wild flowers to Maid Marian.

ROBIN: All hail, my merry men! Come, let's eat! I'm as hungry as a wolf. They sit down and eat. How did you sleep after last night's carouse?

FRIAR: I slept soundly, for one.

ALLAN: Ay, indeed! I could scarce rouse him.

ROBIN: 'Tis well you are rested. I have fine sport for you to-day.

JOHN: Sport?

ROBIN: Yes. 'Tis a rich merchant, Simon of Lincoln, who is travelling through the forest with his step-daughter. Report says he has great riches.

MAID: We'll relieve him of them. 'Tis not just that one man should be burdened with so much gold.

JOHN: Yes, indeed! We will share the burden among ourselves. When comes he, master?



ROBIN: He should be here anon. Now list to me, and I will tell you my plan. This Simon may not be as miserly as reported, so we will give him a chance. I will disguise myself as a beggar. If he gives me alms, he shall go unmolested; but if not, then I fear he will leave us a wiser and a very much poorer man.

JOHN: Hist! What is that?

ROBIN: There they come! Hide, all of you!
standing up All hide but Robin Hood, who, wrapped in a cloak, sits under tree. Simon and Rosamund enter on the right.

ROBIN: Will my lord give a poor man some money?

SIMON: No! Dost think I have money to give to every idle beggar that besets my path?

ROSAMUND: Nay; I beseech you give the poor man something. I would, and gladly, if I had it.

SIMON: Silence! To Robin. Out of my way, thou wicked knave!

ROBIN: Not so fast, Simon of Lincoln, not so fast! Rises and throws off cloak and hat. So I am a wicked knave, am I? Others come out of hiding. Here be three more—stout, lusty fellows, too.

SIMON: Thieves, as I live!
Tries to run away. Friar and Allan-a-Dale seize him. Rosamund looks terrified.

MAID: Fear not, pretty maid. No harm shall befall thee.

ROBIN: Hand over thy riches, friend Simon.
SIMON: Oh, don't take my money—my dear money, my precious gold! Anything but my gold. Take Rosamund. Only leave me my riches!
Clutches at money-bags, which Little John takes.

ROBIN: Shame on thee, coward! Wouldst barter thy step-daughter for thy miserable gold? We will take it from thee, and give it to her. Thou canst thank thy stars that thou hast gotten off so cheaply. Now go! Simon goes out on left. Maiden, thou hast a starved and ill-used look. Is thy step-father cruel to thee? Gives her money.

ROSAMUND: I—I—cannot— Weeps.

MAID: Nay, cry not! I see thou art too loyal to betray thy step-father. Come, he shall not harm thee more.

ROBIN: We will conduct thee to kinder friends.

ROSAMUND: But I have no other friends. Oh, let me stay here with you!

ROBIN: Right willingly! What say you, Marian?

MAID: The more the merrier!
Kisses Rosamund.

ROBIN: Come, comrades, let us welcome her with dance and song.

They dance and sing merrily as the curtain falls, or as they disappear here and there among the trees.

THE RIGHT WAY TO DO SIMPLE THINGS

THERE is a right and a wrong way of doing everything, and it will help us in carrying out some of the simplest tasks of everyday life if we know how to set about the work in the best way. These are some hints as to the right way of doing some very simple things:

TO HAMMER IN NAILS

When we are hammering nails into wood, it is a mistake to hold the hammer tightly near the head. The nail must be steadied in place with the thumb and first two fingers of the left hand across the grain of the wood, while a gentle, free tap or two are given, followed by harder and harder blows, and, as the nail gets a firm hold, it is released by the left hand and driven home.

TO COVER A BOOK WITH PAPER

The best material for covering a book is fairly thick brown paper, but sometimes glazed lining is used, and it lasts well.

When covering with paper we lay the book open in it, leaving a margin of about two inches round it, then fold this margin in over the two leaves of the cover. Next we take a pair of scissors, and cut the paper margin at the top in two places slantwise toward what we may call the backbone of the book, repeat this at the bottom, and turn the two little

flaps so formed between the binding and our paper cover. Now the margin stands out in two pieces above and two pieces below, so we take the corners of the parts folded over and tuck them down behind the back, between the binding and our paper cover, as far as they will go, and, lastly, fold over the four outstanding flaps.

TO REMOVE A GLASS STOPPER

When a glass stopper refuses to come out of a bottle, we must first give a few regular, steady taps downward, round the neck of the bottle. If this method fails, we may try clamping it in our warm hands, or wrapping the neck round with a rag dipped in hot water. One of these methods will generally release the most stubborn stopper.

TO DRY AN UMBRELLA

When we come in out of the rain, we must dry our umbrella by opening it and placing it, handle downward, in a current of air, which will quickly dry the silk cover; but at the same time we must be careful to select a spot where the dripping water can do no harm. If we place our umbrella in the stand without drying it, the water will in turn rust the ribs and rot the cover at the end of the stick. We must always remember never to roll up our umbrella when it is at all damp, otherwise it will very soon cut and wear out.

MISTAKES THAT ARE MADE EVERY DAY

It is quite wrong to speak of the fable of the "Dog and His Shadow." What the greedy dog saw in the water as he looked into it, while holding a piece of meat in his mouth, was not his shadow, but his reflection.

To filter water does not purify it if it is contaminated by impurities dissolved in it. The filtering merely cleanses the water from any solid particles that may be floating in it, and renders it clear.

Water-pipes do not burst when it thaws after a frost. They burst *during* a frost; but it is only when the thaw comes, and the water begins to flow again, that we discover that the pipes have burst.

St. Augustine did not introduce Christianity into Britain. The Christian Church flourished in Ireland and was introduced by Irish missionaries into England a century before Augustine landed in Kent. And so far from Canterbury being the first Christian church in England, the church of Glastonbury existed a hundred years earlier.

King John did not *sign* Magna Charta, as is so often stated in school-books and is usually shown in pictures. What he did was to affix his seal to the document. He was quite unable to write his own name.

Dick Whittington, or, as he should be called, Sir Richard Whittington, Lord Mayor of London, did not owe his fame and fortune to a cat which he brought to London and sold for a large sum to a Moorish king, sending it to Morocco by the hand of a friendly sailor. The story of the cat is an old legend that is found in the literature of many countries far earlier than the time in which Whittington lived.

Jack Cade, the leader of the insurrection in the reign of Henry VI., which is known in history as the Jack Cade Rebellion, was not an ignorant and vulgar rebel as Shakespeare has made him appear to be in the second part of his play of King Henry VI. Cade was, on the contrary, a landowner in Kent, and was married to a squire's daughter.

It was not Columbus who made an egg stand on end, but Brunelleschi, the great Italian architect, who did it when his critics asked him how he was going to support the great dome that he proposed to erect for the cathedral at Florence.

The date of the birth of Jesus was not A.D. 1, as is generally reckoned, but at least four years earlier, for we know that Herod died four years before the beginning of the Christian era; and so, strange as it may seem, Jesus was really born 4 B.C.

It is quite wrong to write lbs. and ozs. as the plurals of lb. and oz. These abbreviations are from the Latin words, and the plurals should be lb. and oz. We might as well write ds. and ss. for pence and shillings as lbs. and ozs. for pounds and ounces.

Mohammed did not write the Koran, for he was unable to write. He probably dictated it to some scribe or scribes who could write.

The monument called Cleopatra's Needle, which was brought from Egypt, and stands on the Thames Embankment in London, was not erected by or in honour of Cleopatra, and should be called after Thothmes, the monarch who first set it up.

The Duke of Wellington did not say "Up, Guards, and at them!" at Waterloo, as is so often stated.

It is quite wrong to speak of Westminster Abbey. The abbey has long since disappeared, and what remains is the church belonging to the former abbey. The proper name of this building is the Collegiate Church of St. Peter.

There never was a Lord Bacon. When Sir Francis Bacon was made a peer, in 1618, he became Baron Verulam; and three years later, when he was raised a step in the peerage, his title was Viscount St. Albans.

Cork legs, for those who are so unfortunate as to lose a limb, are never made of cork. Artificial legs obtained this name from the fact that most of the makers of such articles lived in Cork Street, Piccadilly.

Coffee berries are not berries at all, but the seeds out of the berries, which are, in appearance, very much like ripe cherries.

Briar pipes are not made of briar wood, but of *bruyere*, the French name for the white Mediterranean heather root.

Deer forests are not forests at all, but tracks of land which have been placed out of cultivation for the hunting of deer.

The big and older Polar bears of the Arctic regions are not white, but a dirty brown colour, and are called by sailors in the North "old Brownie."

So far from being the king of beasts, in courage and daring and strength, as many books describe him, the lion is a coward that will always run away from hunters rather than fight, and

he is not nearly so powerful as the tiger.

Tortoises do not eat black-beetles, although many people keep a tortoise in the house because they think it will rid their kitchens of beetles.

Ants' eggs, such as are used for feeding fish in aquariums, are not eggs at all, but the chrysalises of the male and female ants.

Moths are not kept away from clothes by packing carbon, camphor, or lavender with the garments. All such precautions are quite worthless.

Moths do not eat clothes. The holes in garments and curtains and carpets are made by the maggots that are hatched from the eggs laid by the moth.

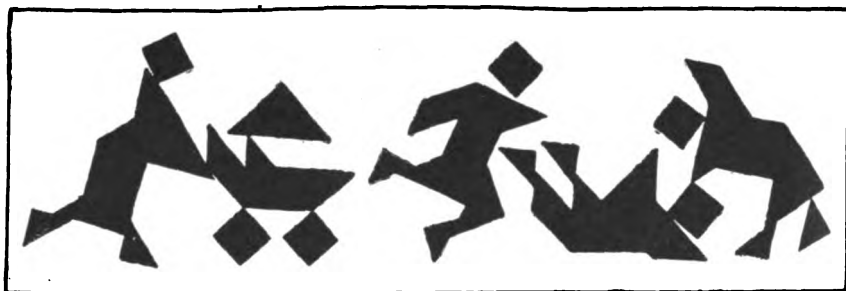
A whale is not a fish, but a mammal—that is, a creature that feeds its young upon its own milk.

It is quite wrong to suppose that a man has one rib fewer than a woman. This error arose from the story in the book of Genesis of Eve being made from one of the ribs of Adam.

Whales do not spout water. They breathe out air, and when they are just below the surface the breathing sometimes shoots up some water from the surface of the sea.



WESTMINSTER ABBEY.
This is not an abbey at all



THE LITTLE BLACK TANGRAMS

TANGRAMS are little black cards of various shapes that are supposed to have been first designed in China many centuries ago. Any boy or girl can make a set of tangrams by taking a square of black card and cutting it up into seven pieces as shown in the picture on this page.

Cardboard that is black on both sides can be bought at most stationers', but if there is any difficulty we can ourselves make the card black by colouring it with ink, or by pasting over ordinary white card a piece of black paper. It is not absolutely essential that the card should be black; any other dark colour does fairly well, although it must be acknowledged that black is really best for the purpose for which tangrams are used—it shows up so well.

To cut the tangrams, we take a square of card, and this may be of any serviceable size—say, three inches square. We cut, with a sharp penknife, from c to b. Then we find the middle point of c b, which is e, and cut from e to d. The remaining pieces are easily cut to the right sizes, for the various points to and from which we cut are all the middle points of lines. Thus, g is the middle of a b, f of a c, j of f g, k of c e, h of e b. Having cut the square up as shown, we have seven pieces of card of varying size—two large triangles, two small, one of medium size, a square, and a rhomboid, f c k j. The card should be black on both sides, so that this latter piece may be used on either of its sides.

By putting these seven pieces of card together, we can make thousands of silhouette pictures of objects of all kinds. In fact, there is scarcely anything at all on earth or sea or sky that we cannot make with the little black tangrams. It must be understood that in each picture every one of the seven pieces of card has to be used; it is not allowable to leave one or more out; and, further, we must let the whole of each piece of card be completely seen—that is, we must not put one piece partly over another.

That pictures of thousands of objects, in fact, of anything, can be made with these seven little pieces of card seems impossible, but it is a fact. Take, for instance, the picture at the top of this page, showing children at play.

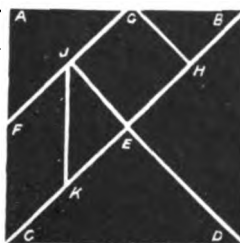
Each individual in the group is made up from one set of tangrams, and the perambulator is also made up from one set, so that the whole group of four children and the perambulator can be made out of five sets of tangrams, one set being used complete

for each figure. Then, again, in the picture of chessmen, each particular chessman is made of one complete set of tangrams. These are only a few examples of what can be done with the tangrams. We can make men, animals, birds, fishes, flowers, boats, houses, shoes, lanterns, faces, geometrical figures, and so on. It is not always easy, even with a finished tangram picture in front of us as a pattern, to put

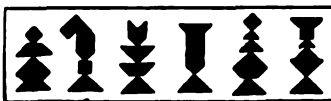
the tangrams together properly to produce the picture, and we may try it with the examples given in this page. Every one of these can be made up exactly from a set of tangrams.

Even artists have declared it quite impossible to form certain figures and objects out of tangrams, and when they have afterwards been shown how these can be made up, they have expressed great wonder at the possibilities in tangrams. Even the letters of the alphabet can be made quite well, a complete set being used for each letter. With a few sets of tangram cards, endless fun

and amusement, together with a good deal of healthy intellectual exercise, can be obtained, and the more one uses these little cards for picture-building, the more fascinating they seem to be. To entertain a company, we should supply each person with a certain number of sets of tangrams and set them all to try their skill at picture-building, a prize being awarded to the one whose picture is decided to be the best.



How to cut the tangrams



Chessmen made from tangrams

HOW TO WORK ENGLISH EMBROIDERY

Most girls nowadays wear soft linen collars and cuffs, and a very dainty finish to a frock they make. But although, of course, it is quite possible to buy such things ready made from any linendraper's, many of us wisely prefer to make our own. They are very simply made, and we may have many kinds. Pleated muslin edged with lace looks very pretty, and so does ordinary lace fitted on to a little band of muslin. Worked on white or coloured linen, in what is known as *broderie anglaise*, or English embroidery, they really look quite charming.

Picture 5 shows a very pretty example of such work. The collar is rounded and of a "Peter Pan" shape, while the cuffs are just a straight piece. These are 6 inches long, and 2½ inches wide. The collar is 3 inches wide, and measures 13 inches on the inside edge and 23 inches on the outside, or scalloped, edge. They are made of white linen, of the sort known as "shirt-front" linen; this kind is firm, and will not pull out of shape. Half a yard of the linen will be sufficient.

The best white thread to use in the embroidery part is D.M.C., Number 10, costing one penny a skein, and we do our work with an ordinary crewel needle.

The principal part of the pattern of our collar and cuffs is made up of little holes worked round, decorated with an outline pattern of dots and stem stitch.

The border of our collar is scalloped and buttonholed. The little holes in the pattern are exactly like eyelet holes, only much bigger. They are not difficult to do, but care is needed not to pull them out of shape while we are working.

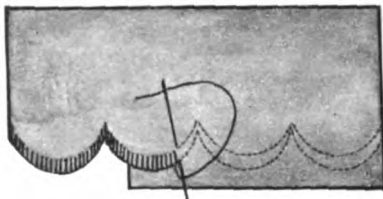
The scalloping can be worked out with the aid of a coin—a shilling or a half-penny is the right size in this case. We start from the centre-back of the collar, and mark one half-circle in pencil, using the coin as a guide, spacing out the scallops evenly round the edge. We shall find that an ordinary-sized collar will take about 11 scallops on each side of the centre one, that is, 23 scallops in all.

When we have marked the outside edges of the scallops, we must use our coin again to get the inside edge, and make each of the half-circles with a crescent shape.

Next we want to put in the circles for the holes. The point at which to place them is easily found, as one hole comes above each scallop. The end of a lead pencil will give us the size,

and, if we press it hard on to the stuff, we shall find that it leaves a clear outline on the material, which we can pencil over if we do it at once. Of course, we might use a Briggs transfer for our pattern, but it is so simple that it seems a pity not to make it ourselves.

The dots are next put in—three dots above each scallop-point, and three over each circle, about half an inch above it. The branches are made by connecting up the bunches of dots, as shown in the pattern. This is quite easily done, as the little twigs are short, and we have the dots to guide us. But we must begin our twigs at the centre-back, and from there we make them branch in opposite directions



1. HOW TO WORK THE SCALLOPS

A very black, hard pencil, cut to a fine point, must be used to mark out the pattern. Before starting, the collar should be pinned to a board with drawing-pins to keep it steady and quite flat. The pencil-marks can be kept from smudging while we work by slightly damping the whole pattern with a sponge and then pressing it with a hot iron.

This "fixes" the pattern. Having completed our pattern, we proceed to work the scallops, cutting them away as we go along, being careful to cut only the linen. See picture 1. We must keep the shape of the crescents very neat,

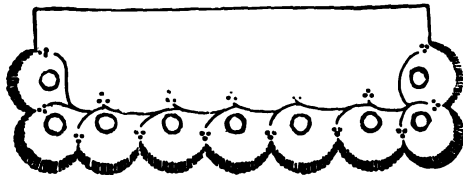
and regulate the stitches to fit the shape, making the longest ones come in the middle. Buttonhole stitch is, of course, the stitch used. The "eyelet" holes must be carefully outlined by running a thread round them; then

the enclosed stuff is cut out with a very sharp pair of scissors. The hole is edged with plain overcasting stitches, worked very regularly from left to right. See picture No. 2.

We should remember to cut the holes a wee bit smaller than we want them to be when finished, because the working always tends to enlarge them. The twig and dot part of our pattern is very simple to work. Each dot is composed of four little stitches placed close together; the twigs are worked in stem stitch, as is shown in picture 4. The inside curve of the collar must be neatly hemmed with Number 60 white sewing cotton, and the cuffs with the same. Two small cuts can be made in the centre of

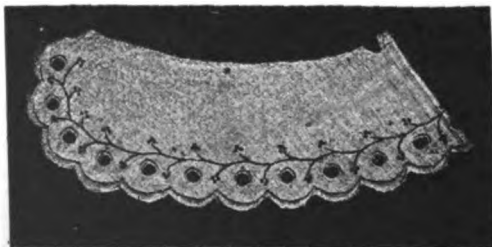


2. THE HOLE



3. THE PATTERN OF THE CUFF

4. STEM STITCH



5. ONE HALF OF THE FINISHED COLLAR

the back of the collar to give a "spring" and make it lie flat when tacked inside the dress; or we can set our collar and cuffs into bands of cambric, three-quarters of an inch wide.



GAMES TO PLAY ON THE BEACH

WE all look forward to our holidays at the seaside, and our first desire when we reach our destination is to get down to the beach with spade and pail, and to build castles of sand with trenches all round. A great deal of fun and amusement is to be obtained from castle-building, especially if there is a party of boys and girls. In this case it is better, instead of trying to build an elaborate castle which shall be a model of a real castle, to pile up sand into a great heap, and dig a deep trench all round, and then, dividing the party equally, to play "King of the Castle." One side holds the fort while the other tries to take it by storm, and, as the sand is soft, we do not hurt ourselves at all as we fall down or get pushed from the castle. For this game we should select a spot where there are no rocks nor big stones, and where the sand is dry. The bigger the castle that we build up, the greater will be the fun. The attacking side may be considered to have won the game when they have turned all the members of the other side off the castle; or a flag may be posted in the middle of the fort, and if the attacking side can seize the flag and take it away, they may be considered victorious.

If there are only two or three of us—not sufficient to form sides for playing the "King of the Castle"—then it is better to build a castle which shall be a good model of a real castle. We must decide upon the shape that the castle is to be, and a very good style is a castle with a round tower

at each of its four angles, the towers to be joined up with walls. The tops of the towers and walls should have battlements, and these may be cut, after the castle is built, with an old knife. For scooping out gateways and windows in the walls, an old iron spoon is very useful. For model castles of this kind, it is wise to use wet sand, which will cling well together; otherwise, if we use dry sand, the castle is sure to collapse when we begin scooping out gateways and windows. If there is no wet sand available, we can easily sprinkle seawater from our pails over the dry sand.

The beauty of the castle will, of course, depend largely on the skill and artistic taste of the builders, but it is surprising what perfect models of castles can be built in sand upon the sandy beach.

An excellent game for the beach is trench-digging, and we can easily arrange a competition in which the one who digs the largest and deepest trench in a given time shall be declared



A TRENCH-DIGGING COMPETITION

the winner. Or we might make the competition one in which a hole or pit of a certain diameter and depth has to be dug and filled with water from the sea, the sea being allowed to run into the hole through a trench which each competitor must dig. The one whose pit gets filled with water first is declared the winner. Of course, in a competition of this kind, the spades of the competitors should all be alike as to size and material. It is much easier to dig with a large metal spade than it is to dig with quite a small wooden one

A tug-of-war is always exciting, but it is more exciting than ever when played on the beach. The sand makes the result very uncertain. At one time it enables the competitors to get an apparently firm foothold, and then it suddenly and treacherously gives way, so that the ground gained or held is lost. The competitors may, of course, wear their shoes or be barefooted, but all competitors should be alike in this respect—that is, if any are barefooted, all should be. Then, again, the sand being so soft, a fall does not hurt us in any way. If the tug-of-war is pulled barefooted, we must be careful to choose a part of the beach where there are no pieces of glass, sharp stones, or

the beach because of pebbles and rocks, we can arrange a steeplechase, and there is much excitement in climbing over these obstacles. We must be careful, however, that in the excitement of the race we do not fall. The sand may be high up on one side of a groin or rock, and far down on the other, so that care must be exercised in climbing over.

On a beach where there are plenty of pebbles mixed with the sand, a good game is to select some short sentence, and collect white pebbles and form the words on the sand with these pebbles. The one who succeeds in first forming completely and artistically the sentence that has been selected wins the game.



A WORD-FORMING GAME

broken shells. A mark, such as a band of seaweed, must be put midway between the two sides before they start pulling, and the side that pulls any of its opponents over this mark is the winner.

If a long, clean stretch of sand can be found on the beach, some good races may be run, with the competitors either barefooted or wearing shoes. The results of these races on the beach are always uncertain, because running on sand is very different from running on the pavement or an ordinary road or a field, and far more difficult. When there is no clear track of any considerable length for running on



SIGNALLING WITH FLAGS

Boy and girl scouts, and those interested in scouting games, can have plenty of amusement on the beach, especially if there are boulders behind which to hide. Then we shall find the beach an excellent place in which to do signalling with flags, and, owing to the clearness of the air by the sea, we can signal across very long distances.

These are only a few of the many games that may be played on the beach, and we shall find that if we organise our play—that is, engage in definite games—the time passes much more pleasantly than if we have no regular and settled system of playing definitely.

A TELEPHONE THAT A BOY CAN MAKE

THE material for a telephone need cost nothing at all, for it is found in every home. We want two round tin canisters, such as coffee is packed in, about $2\frac{1}{2}$ or 3 inches in diameter. The lids are not wanted, so we put them aside; then we knock the bottoms out of the canisters so as to leave two tin cylinders open at both ends.

Now we cut two round pieces of parchment, like that which is used for covering jam-pots; or, if this is not available, ordinary thick cartridge paper will do almost as well. The diameter of the pieces of paper should be about $\frac{3}{4}$ inch or an inch wider than the diameter of the tins. We stretch a piece over one end of each of the canisters, and glue the edges down tightly all round. When the glue on the parchment or paper is dry we shall have two miniature drums, which will give a sound like a drum when

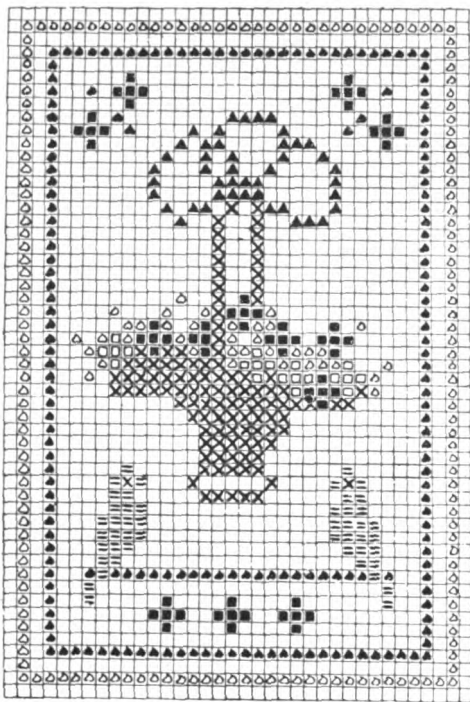
the stretched paper is tapped with the finger.

We next make a small hole with a needle in the centre of one of the paper heads and draw through a piece of cotton. Then, removing the needle, we tie a small knot in the piece of cotton and pull it back till the knot touches the paper or parchment. We measure off twenty or thirty feet, or whatever length we require, and put the other end of the cotton through the other parchment head in the same way as the first. Our telephone is now complete, and when two friends stretch the cotton tight, and one speaks into one cylinder, if the other puts the other cylinder to his ear he will hear clearly what is being said. The cotton must be kept quite tight, and must not be allowed to touch anything or the vibrations caused by the voice will be interfered with and spoiled.

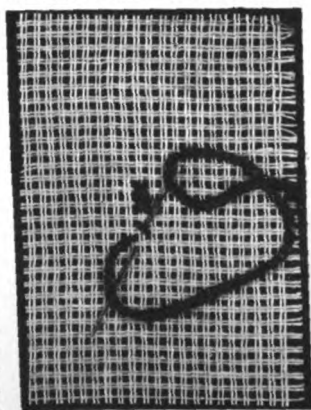
A LITTLE PICTURE ON CANVAS

THOSE of us who have a grandmother have most likely seen the "sampler" which she did when she was a little girl. It is years and years old, and it hangs on the wall in a picture-frame. It has her name on it and the date, and some queer birds and animals, possibly some trees in pots, and some sprigs of flowers. Round it all is a border, and the whole picture is worked in wool on canvas. Now we are going to learn how to do a small sampler or canvas picture for ourselves—much smaller than grandmother's, but quite large enough for us to begin with.

When finished, it will be about the size of a postcard, and the picture on it is made up of a basket of forget-me-nots, tied with a bow, while underneath are perched two little yellow birds. As a great many shops make a speciality of selling little black or dark-brown frames in postcard sizes for ten cents, we shall be able to get our canvas picture framed at no great expense. In fact, it would make a nice little present for someone going away, with its very appropriate message of "Forget-me-not" suggested by the flowers. Now to begin. We shall want very few materials—just a quarter of a yard of double-thread canvas, costing twenty cents per yard, some coloured wool, and a canvas needle. The wool can be obtained in dime balls at almost all the fancy-work



1. THE PATTERN, WORKED IN SEVEN COLOURS



2. THE CROSS-STITCH chosen, and they must, of course, harmonise. In picture 1, which shows us the design from which

we are to copy our pattern, each square represents, in the actual work, a cross, and the whole picture can be copied in this way—that is, by making a cross on the canvas for each square in the position shown in the design. The stitches must completely hide the canvas. In

picture 2 we see how a cross-stitch is made. We are going to copy the whole of our picture from the design, and afterwards fill in the background with another colour.

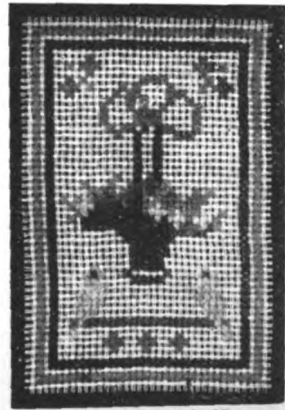
Picture 1 gives us the pattern from which to work; this is the "key" to it:

Dark green—filled-in leaf
Light green—outlined leaf
Dark blue—filled-in square
Light blue—outlined square
Brown—cross
Yellow—two lines
Pink—triangle
Cream—not shown

The cream for the background is not shown, all the empty squares left when our pattern is finished being filled in in this colour last of all. We fold the quarter-yard of canvas into three, and cut off one piece, which will be a square of about nine inches. We must turn the edge in half an inch all round, and tack it down with white cotton. This is done,

of course, to prevent the canvas fraying out, and also to prevent our wool from catching in the rough edges. Now we have to find the centre of the square. If we feel we cannot guess it near enough, the best way will be to double the canvas diagonally—from corner to corner—crease it, and then unfold it, and do the same from the other two corners. Where the creases cross will be the centre, or, at any rate, it will be quite near enough, as our canvas leaves plenty of margin.

The best way to begin to work our sampler is to start the centre of our picture in the centre of our canvas. If we look carefully, we shall see that the forget-me-not which comes under the handle of the basket is nearly in the centre. So we will choose this to begin



3. THE SAMPLER

with, and make it of blue wool in five crosses. Now we take a thread of green wool, and make a cross on the right of the outside petal of the forget-me-not, then one cross immediately below the last, and then one to the left of that, and one again below. The next cross is below the last, but one square to the left of it; then we make another below, but one square to the left, and then three crosses upwards, which brings us to the forget-me-not again. We take the blue wool again, and make the forget-me-not which comes under the first one, but one square to the right of it. Here are two flowers close together; we make one a light blue and one a darker blue, and then proceed with the green leaves in a similar fashion, just counting the squares. When the pattern begins to work out and show itself it will become most interesting. If we find any difficulty in counting the squares on the canvas, we should think of the squares as crosses, because the texture of the canvas shows them in this way. The handle of the

basket is worked in brown wool, starting from the right of our first forget-me-not. The basket itself comes next, as shown in picture 1.

At the bottom of the basket a row of five squares is left to show the rim. These are to be filled in when the background is made. We work the bow in pink, and from this we can easily count to the corner sprays, which are worked in blue and green. For the bar on which the birds are seated we can start from the centre and work outwards—five squares down from the bottom of the basket, and twenty-four for the bar. Next, we work the two birds, and, last of all, the two borders. The birds' eyes should be put in in brown. The birds are made in canary yellow, and the bar in green. The borders also in green, of two shades. We must not forget the three blue flowers below the bar. Picture 3 shows the sampler finished, except for the filling-in of the background. When the background has been filled in with cream, we press the picture on to the wrong side with a warm iron.

ANSWERS TO PUZZLES

ANSWERS TO PUZZLES ON PAGES 5452 AND 5453

1. Aspirate, pirate, irate, rate, ate, at, tear, tea, ear, era, rat, tar.
2. G olf
L ily
A pe
D agger
S ack
T oulon
O nyx
N ora
E lm
3. I ate next to nothing!
4. 96 triangles.
5. Tennyson.
6. Rainbow.
8. Pen-man-ship.
9. Crow and parrot transformed, become prow and carrot.
10. (1) Pink; (2) Erica; (3) Iris; (4) Anemone; (5) Daisy; (6) Pansy; (7) Lobelia; (8) Harebell; (9) Rose; (10) Gentian.
11. Because the year 1888 began on a Sunday and ended on Monday, and 1889 began and ended on Tuesday.

7. A dventure R	L e A
E ntra P	X anthipp E
A riost O	N u F
D o T	E ac H
R emors E	P ul L
O ntari O	P aralyti C
E l K	

12. (1) Chase; hovel; avail; Seine; Ellen.
- (2) Tame; ager; mean; Erne.

13. A piece of coal. When it sleeps on the wing. An L (ell). Short. Noise. Make the vest first. A law-suit.

14. The farmer added on each side of the field a triangular piece of land, its long side the same length as the side, its two short sides each one half the length of the diagonal, of the original field.

SOLUTIONS OF THE PUZZLE NAMES ON PAGE 5458

1. Hunt the slipper. 2. Croquet. 3. Cat and bat. 4. Hockey. 5. Hide and seek. 6. Hop-scotch. 7. Football. 8. Leap-frog. 9. Cricket. 10. Hare and hounds. It will be seen that in some cases the name of the game is spelt by the pictures, and in others it is simply represented by the sounds of the words.

ANSWERS TO THE "WHAT IS IT?" GAME ON PAGE 5457

The things referred to in the game of "What is it?" on page 5457 are: (1) Pumicestone, (2) a snowflake, (3) chalk, (4) the heart, (5) a sponge, (6) electricity, (7) a pearl.

HOW TO MAKE A BLACKBOARD

FIRST of all we must select our board, and the best kind for our purpose is a piece of whitewood thoroughly seasoned. If it is necessary to join two lengths in order to make our board wide enough, we should see that the two pieces are of exactly the same thickness. Then they should be glued together, and a strip about 2 inches wide should be glued top and bottom, also of the same thickness as the board itself. When the glue is dry we should sandpaper the surface to get it perfectly even and smooth. For the solution to make the board black, the following is a very good recipe: 2½ ounces of pulverised pumicestone, 1½ ounces of pulverised rotten-stone, 3 ounces of lampblack, the

whole to be mixed with methylated spirit sufficient to make a thick paste. This is taken from a quart of methylated spirit, which is needed to make the colouring solution.

When the paste is thoroughly mixed up, we dissolve 3½ ounces of shellac in the remainder of the spirit, and then mix the whole of the ingredients together, when we have a quart of good black liquid for colouring the board. No oil whatever must be used in the liquid. The black can be applied with an ordinary painter's brush, and several coats should be given, but before giving a new coat we must be sure that the last is perfectly dry. When the final coat has been given and is dry, the board is ready.



WHEN DID YOU LAST SEE YOUR FATHER?

A LITTLE PLAY FOR THE SCHOOLROOM



CHARACTERS

MISTRESS SIDNEY	Wife of Colonel Sidney, a Royalist
BARBARA SIDNEY	Aged twelve
ROGER SIDNEY	" seven
NAN SIDNEY	" five
MICAH HOLDFAST	A Parliamentarian

The children

Scene: The Nursery of Colonel Sidney's house. Roger and Nan are seen playing at soldiers.

The scene needs the simplest furniture—a high-backed wooden chair, one or two stools. Across one corner a wooden draught-screen may be drawn. The dresses should be something like those in the picture.

ROGER : Nay, Nan ; march like me. I fear me you will never make a soldier !

with sword

NAN : But my legs *will* be so tired, Roger ! *Sits down on floor tearfully.*

ROGER : Well, rest, then, and I will sing and march alone.

Sings a line or two of any Ca. alier song.

MISTRESS : My dear, dear hearts. *As she enters hastily, falls on her knees by little Nan, throwing one arm round her and holding out the other to Roger.* Mother knows not what to do !

ROGER : Mayhap a man like me may help you, mother !

coming to her

MISTRESS : I would, indeed, you were more grown ; then you might understand our desperate strait. But my dear ones are but babes.

ROGER : Babes ! Nan is a babe. See, mother, do babes carry swords like this ? *Frees himself and stands erect.*

NAN : I am big, mother. My legs are not tired now.

MISTRESS : O what to say, what to do ? Hearken, sweetings ! Those stern men in the great hall would have you there anon. I prayed them let me come to fetch you.

ROGER : But I am not afeared, mother. I stood there, and heard them ask you and Barbara and the servants about father.

MISTRESS : Roger, my dear, dear lad, you heard me say I had not seen father, heard Barbara answer the same, and now they will speak with you !

ROGER : Let us go ; I am not afeared. But as Nan is a babe, she may be. Let her play here.

sturdily

MISTRESS : Nan must c'en come, too. My little son, my little son, what can I say ? I am full of fear for what thou mayest say. That curly head of thine does not much more than reach the top of the great table in the hall.

BARBARA : Mother, mother ! I have run with such speed that I scarce have breath to tell you ! After that soldier closed the door upon us,

running in hastily

there was no one watching without, so I stood a moment to hearken. Ay, I know 'twas not a seemly thing to do, not like my father's daughter. I heard them say they would follow swiftly upon you, not send for the children to the great hall, but take them unawares at their play, ere you had time to prepare them.

MISTRESS : Prepare them ! I am at my wits' end ! We have lied to no purpose ; they must now discover all.

in desperation, rising

BARBARA : Mother, do not despair. Something may yet be done. Let us pray these men to leave the children to their play.

MISTRESS : And so assure them we have matters to hide. *Speaks aside with Barbara.* Your father begged so hard he might kiss Roger and Nan as they slept in their beds yonder, and I had not the heart to stay him. Nan never stirred, but Roger— Hush ! Are those steps on the stair ? *The children return to their play.*

HOLDFAST : Then, sirs, tarry without here, and the task shall be mine. *Enters.* Ah, mistress, we do not put you to the pain of bringing the lad to us, but come to him. Hither, lad ! What, playing ?

speaking before entering

'Twere better to learn good texts. *Sits in great chair.*

ROGER : I am a soldier, sir. But this is my mother's chair. She stands yonder. You may have my stool.

HOLDFAST : I stay where I am, young sir ! 'Tis not for such as thee to chide me ! Art not afraid ?

ROGER : No, sir. Nan may be, because she is a little maid and cannot learn to be brave.

HOLDFAST : So, art brave, then? Harken! Dost know that the Lord God punishes, with heavy wrath, those who lie? Dost believe this?

ROGER : No, sir.

HOLDFAST : What! 'Twere well that godly men had the handling of thee!

ROGER : Sir, I say, "Our Father."

NAN : And I say it, too, 'most as well as brother. *Running forward.*

HOLDFAST : That word "Father" comes readily to these lips.

ROGER : I love father. So would you if you knew him well. Mother thinks you would harm him.

MISTRESS : He is but a babe, and speaks like a babe. Let him go! Have you no mercy?

HOLDFAST : I would hear him speak.

ROGER : *going to his mother* Mother, I will not speak if you bid me not. See, I can close my lips so firmly! None shall make me open them.

HOLDFAST : But I have a question for him to answer. *Mistress Sidney springs forward.* Nay, madam, stand back! There are men-at-arms without. *Barbara draws her away.* Boy, answer me in the name of God: "When did you last see your father?"

ROGER : I saw my father last night.

HOLDFAST : Ah, madam! What now? Canst dare still show a calm face? *Rises.* The Lord hath delivered him into our hand! Hallo! Without there! Enter, and triumph with me! None answers! *Turns to Roger.* 'Tis a good lad! Last night! Didst speak with him? *Draws Roger forward.*

ROGER : Ay, I saw him. He spoke with me. Told me to fear God, honour the King, and love my country.

HOLDFAST : You saw your father last night. Wilt show me where? Thou shalt play soldiers all day. Take my hand, and lead me.

ROGER : 'Tis easy to show you, sir. But I would not take your hand. Men walk alone.

HOLDFAST : Come, lad! Show me the secret hiding-place for which skilled *walks towards door* men have searched in vain.

ROGER : I saw my father here, sir.

HOLDFAST : Here! Is he behind these walls, then?

ROGER : 'Twas here I saw him. I sleep here, and Nan, too. I was in my bed when father came. *Points.* The bed is there. He stood by my side.

HOLDFAST : Child, art playing with me?

ROGER : *sternly* The last time I saw my father was last night in a dream.

NAN : Nan had no dream!

ROGER : Babes have no dreams. I saw my father in a dream! 'Tis truth!

HOLDFAST : Wert thou the son of a godly man, England might know a great man. Micah Holdfast hath had enough of questioning babes.

ROGER : Sir, you have not hurt me!

HOLDFAST : I have done with thee! Go and play! *Goes out.*

ROGER : *running to his mother* Nay; I will care for my mother. See how weary she is! Come, rest in the great chair, and I will keep guard, as a soldier can, over you until my father comes again!

Mistress Sidney sits; the children gather about her.

CURTAIN

THE NEXT THINGS TO MAKE AND DO BEGIN ON PAGE 555.





READING

THE MEANINGS OF PHRASES

THERE are many phrases that are used in our newspapers and books, and in the course of conversation, that are very interesting, and the meaning of which we should know. Some of the phrases that are most commonly used are given on these pages with their meanings.

ADAM'S ALE means water, because Adam is supposed to have had nothing but water to drink.

ADAM'S APPLE is the name given to the lump in the front of the neck where the throat is. It used to be thought that a piece of the apple which Adam ate stuck in his throat, and made this lump.

ALL MY EYE AND BETTY MARTIN is a corruption of the Latin prayer, "*Ah mihi, beate Martine.*" O give me, Blessed Martin. An Englishman hearing someone pray this prayer, said it sounded like nonsense, and seemed to be "All my eye and Betty Martin." So this phrase now means "nonsense."

BAKER'S DOZEN means thirteen. Bakers used to be heavily fined for giving short weight, so to be quite sure they were on the safe side they gave an extra roll to every dozen.

BEE. When a man has "a screw loose," or is not quite "all there," we say he has a bee in his bonnet. Bonnet is Scottish for hat.

BELL THE CAT. This means to do something that is dangerous. The mice once upon a time decided to hang a bell round the cat's neck, so that they might always know when puss was

coming. But when it came to doing the business, there was no one plucky enough to "bell the cat."

BLINDMAN'S HOLIDAY means the time between daylight and evening darkness, when it is too dark to work and too early to light up.

BLUE STOCKING means a learned and very studious woman. There were societies of clever women in Paris and Venice, the members of which used to wear blue stockings.

BONE. "To have a bone to pick with a person" means to have something unpleasant to settle with him.

CAT. "To let the cat out of the bag" means to tell something that ought to be kept secret. People, it is said, used to put a cat in a bag and bring it to market to try and sell it as a pig. But if the purchaser opened the bag before buying, the cat jumped out.

COALS. "To carry coals to Newcastle" means to do something there is no need to do. Newcastle is one of the greatest coalfields in the world, so to take coals there would be unnecessary.

COVENTRY. "To send a person to Coventry" means to ignore him, to boycott him, to seem never to notice him. It is said that the people of Coventry used to dislike soldiers, and never had any dealings with the soldiers who garrisoned the town.

CROW. "As the crow flies" means as straight as possible, for the crow flies straight to its destination. So to say that two places are twenty miles apart as the crow flies, means that

though it may be a much longer distance by road, or rail, or river, yet it is only twenty miles in a straight line. "In a bee-line" means the same thing, for a bee, when laden with honey, goes straight home to the hive.

DOGS. "To go to the dogs" means to go to the bad. "Dogs" is probably from a term in dice-playing, where "to throw three dogs," that is, three aces, meant to have bad luck.

FIG. In the phrase "I don't care a fig for you," fig here means *fico*, the Italian for a snap of the fingers.

FRENCH LEAVE. "To take French leave" means to do a thing without asking permission. The French soldiers used to take what they liked from a conquered city, without asking leave or paying.

GORDIAN KNOT. "To cut the Gordian knot" means to find the way out of a difficulty. Once upon a time, a man called Gordius tied his wagon to a beam so tightly that no one could untie it. Alexander the Great was told that any man who undid that knot would become king. So he simply cut the knot with his sword.

GREEK KALENDS. "To put a thing off till the Greek kalends" means that it will never be done, for there were no kalends among the Greeks. The kalends were the first of the month in the Roman way of measuring time, and so we get our word calendar.

HALCYON DAYS are days of calm and happiness—literally, "kingfisher days," from the idea that the kingfisher laid its eggs on the surface of the sea in the calm, happy days before winter.

HAUL OVER THE COALS. This means to scold or punish a person. It probably refers to the days when people were tried by being held over a fire; if the fire burnt them, they were supposed to be guilty.

HOIST: "To be hoist with one's own petard" means to be blown up by an explosion that one has caused oneself, and so to fall into one's own trap. A petard was a mortar filled with gunpowder, used for blowing up gates or barricades.

LURCH. To leave a man in the lurch means to leave him in a difficult situation without help. Lurch is a word used in the game of cribbage, to mark the position of the player who has

scored every point before the other has begun to score.

MAD AS A HATTER. Hatter is really *adder*, the word for *adder*. So the phrase means "as mad as an adder."

MARE'S NEST. When a person has made what he thinks is an interesting discovery, and it turns out to be nothing after all, we say "he has found a mare's nest." The allusion is to Mara, a kind of demon, whom people used to think had a nest filled with wonderful treasures. The same demon gives his name to night-mare.

NAIL. "To pay down on the nail" means to pay ready money. In front of the Exchange in some cities there used to be a pillar called the nail, and on this pillar, or nail, people used to put down the money which they had to pay when they had bought anything.

NICK. "In the nick of time" is a familiar phrase. The old way of counting, or of keeping accounts, was by cutting notches in a stick. These notches were called nicks. At certain schools and universities it used to be the custom to put a nick against each pupil's name as he entered chapel. Those who left going in till the last minute, and were all but late, were then said to be just in the nick of time.

PAY THE PIPER. When the Pied Piper of Hamelin, about whom we read on page 533, had cleared the town of rats and mice, the people refused to pay him what they had promised. So he led all their children away by piping so beautifully that they all followed him away for ever. So "to pay the piper" now means to pay up what one owes.

PETER AND PAUL. "Robbing Peter to pay Paul" means to steal something from one man to pay another. Much of the money belonging to St. Peter's, Westminster—better known as Westminster Abbey—was taken for the repair of St. Paul's Cathedral.

POINT. To dine on "potatoes and point," or to eat "bread and point," means to have a very poor dinner. When salt was dear, and poor people could not buy it, they used to tell their children to point their potato or bread at the empty salt-box, and then eat it, imagining it had been dipped in salt.

RAIN CATS AND DOGS. This means a heavy downpour of rain, accompanied by wind. Dogs used to be thought to

be the signal of much wind, and cats were supposed to influence the weather.

RAP. "Not worth a rap" means worthless. The rap was a counterfeit coin current in Ireland for a halfpenny in the time of George I., and really worth about half a farthing.

RED-LETTER DAY. This means a day that stands out in our life as a happy and delightful day. In almanacs, saints' days and holidays used to be printed in red ink to mark them off from ordinary days.

ROLAND. To "give a Roland for an Oliver" is a common expression. Roland and Oliver were two of the great knights of the Emperor Charlemagne. Once when they fought each other, the conflict lasted five days, and at the end it was what we call a drawn battle, that is, neither won. So "to give a Roland for an Oliver" means to give tit for tat.

RUBICON. "To cross the Rubicon" means to take some course of action from which we cannot possibly go back. The Rubicon was a stream between Italy and Gaul; and when Julius Cæsar crossed the Rubicon, he had passed from his own province of Gaul, and had actually begun to invade Italy.

UMBRAGE. "To take umbrage" means to take offence. The word comes from the Latin *umbra*, meaning shade, gloominess.

WALLS HAVE EARS. In old days, buildings were sometimes constructed having tubes hidden in the walls, so that what people were saying in one room could be heard in another room far away. So the phrase "walls have ears" came to mean: "Take care what you are saying; you may be heard by someone who will repeat what you say."

ARITHMETIC

MULTIPLICATION & DIVISION OF FRACTIONS

BEFORE we begin the multiplication of fractions let us work an example requiring both addition and subtraction.

EXAMPLE

Find the value of $4\frac{3}{8} + \frac{5}{8} - 2\frac{1}{2} - \frac{1}{8}$.

Here we are required to add together $4\frac{3}{8}$ and $\frac{5}{8}$, and to take both $2\frac{1}{2}$ and $\frac{1}{8}$ from the result. One method would be to work two addition sums, $4\frac{3}{8} + \frac{5}{8}$, and $2\frac{1}{2} + \frac{1}{8}$, and then take the second result from the first. But we can arrange our work so that it is not necessary to find these two results.

$$\begin{aligned} & 4\frac{3}{8} + \frac{5}{8} - 2\frac{1}{2} - \frac{1}{8} \\ = & 2 + \frac{27 + 10 - 56 - 44}{72} \\ = & 2 + \frac{37 - 100}{72} \\ = & 1 + \frac{109 - 100}{72} \\ = & 1\frac{9}{72} = 1\frac{1}{8}. \end{aligned}$$

First deal with the whole numbers; take 2 from 4. Then express the fractions with their least common denominator, 72. This gives us the second line of the work shown above. Now collect the numerators which are to be added, 27 and 10, obtaining 37; then the numerators which are to be subtracted, 56 and 44, obtaining 100. The remainder of the work is now very easy, exactly like

the subtraction sums which we already know quite well how to do.

Proceeding to multiplication, we must first learn to multiply a fraction by a whole number. For example, suppose we multiply $\frac{2}{3}$ by 3. Just as 5 times 3 means that we are to take 5 three times and add the results, thus: $5 + 5 + 5$, so $\frac{2}{3}$ times 3 means that we are to take $\frac{2}{3}$ three times, and add the three quantities together.

Evidently, then, $\frac{2}{3} \times 3 = \frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \frac{6}{3}$ or $\frac{5 \times 3}{7}$. Therefore, to multiply a fraction by a whole number we multiply its numerator by the whole number. If necessary, we then reduce the result to a mixed number, or to its lowest terms.

Again, suppose we multiply $\frac{2}{15}$ by 3. The result is $\frac{6}{15}$, which can be reduced by cancelling the factor 3, so as to obtain $\frac{2}{5}$. Now, the result, $\frac{2}{15}$, is reduced to lower terms because our multiplier, 3, is a factor of the denominator, 15. Thus, we multiply a fraction by a whole number if we divide its denominator by that number.

EXAMPLES

- (1) $\frac{2}{15} \times 3 = \frac{2}{5}$. Multiplying the numerator.
- (2) $\frac{2}{15} \times 2 = \frac{4}{15}$. Dividing the denominator.

Next we will consider how to divide a fraction by a whole number. Suppose we wish to find the result of dividing $\frac{2}{3}$ by 3. The fraction $\frac{2}{3}$ means that a unit was divided into 3 equal parts, and 2 of the parts taken. Now, if we divide each of the 3 parts into which the unit was divided into 3 equal pieces we shall have the unit divided into 9 equal pieces, so that each part will be called a ninth, or $\frac{1}{9}$. Therefore, the two original parts which formed $\frac{2}{3}$ each gives us 3 of these ninths, so that, together, they make 6 ninths. Evidently, if we divide 6 things by 3, we get 2 for a result; so that 6 ninths divided by 3 gives 2 ninths; so that the result of dividing $\frac{2}{3}$ by 3 is $\frac{2}{9}$. But we obtain $\frac{2}{9}$ from $\frac{2}{3}$ if we multiply the denominator, 3, by 3. Therefore, to divide a fraction by a whole number, multiply its denominator by the number. This number may possibly be a factor of the numerator, in which case we should reduce the fraction to its lowest terms by dividing numerator and denominator by that number. Thus, we can also divide a fraction by a whole number if we divide its numerator by that number.

Our next step is to multiply a fraction by a fraction. Multiply $\frac{2}{3}$ by $\frac{3}{4}$. In just the same way that $\frac{2}{3} \times 3$ means that we are to take 3 of the fractions $\frac{2}{3}$, so we may consider that $\frac{2}{3} \times \frac{3}{4}$ means that we are to take $\frac{3}{4}$ of the fraction $\frac{2}{3}$.

Now, to obtain $\frac{3}{4}$ of a thing we must divide it into 4 equal parts and take 3 of them. By what we have already learned we know that if we divide $\frac{2}{3}$ into 4 equal parts, we obtain $\frac{2}{12}$, and that if we take 3 parts each equal to $\frac{2}{12}$, we obtain $\frac{6}{12}$.

Thus, $\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$. But 10 is 5×2 , and 21 is 7×3 , so that the result is obtained by multiplying the numerators together for a new numerator, and multiplying the denominators together for a new denominator. If the result can be reduced to lower terms we proceed to cancel it down. Evidently, then, we may cancel *before* we multiply numerators and denominators.

EXAMPLES

(1) $\frac{7}{8} \times \frac{16}{21} = \frac{7}{3}$. Here, we see that 7 will divide the numerator 7 and the denominator 21.

We therefore cross out the numerator 7, and suppose a 1 written above it; and we also cross out the 21 and write 3 under it, since 7 goes 3 times into 21. Similarly, 8 will cancel 16 and 16. We now have only 2 left in the numerator and 3 in the denominator. Hence, the result is $\frac{2}{3}$.

(2) $1\frac{1}{2} \times 4\frac{1}{2}$. Here we must first express the mixed numbers as improper fractions; we then proceed as before, and obtain $1\frac{1}{2} \times 4\frac{1}{2}$, which, as a mixed number, is $8\frac{1}{2}$.

If there are more than two fractions in the sum, the process to be followed is exactly the same.

(3) $2\frac{1}{2} \times \frac{3}{4} \times 1\frac{1}{2}$. Here, 9 cancels 27, and the result, 3, cancels the numerator, 3; remember, then, that we have 1 instead

of each of these. Similarly, 4 cancels 8, and the result the 2 below. We have, therefore, 1 for each numerator, and 1 for each denominator, so that the whole result is 1.

Finally, we have to learn to divide a fraction by a fraction. Suppose we wish to divide $\frac{2}{3}$ by $\frac{3}{4}$.

If we divide $\frac{2}{3}$ by 2 instead of $\frac{3}{4}$, the result, we know, is $\frac{1}{3}$. But the divisor 2 is three times bigger than the actual divisor $\frac{3}{4}$. Therefore, our result will be 3 times too small. Hence, to get the right result we must multiply $\frac{1}{3}$ by 3; which gives us $\frac{1}{1}$. Now, $\frac{2}{3} \times \frac{4}{3}$ also makes $\frac{1}{1}$. Therefore, if we multiply $\frac{2}{3}$ by $\frac{4}{3}$ we get the same result as if we divide $\frac{2}{3}$ by $\frac{3}{4}$. Or, to divide by a fraction, turn the fraction upside down and multiply in the ordinary way.

EXAMPLES

(1) Divide $\frac{2}{3}$ by $1\frac{1}{2}$. Here we express the divisor as an improper fraction $\frac{3}{2}$. Inverting this, we have to multiply by $\frac{2}{3}$. The result is $\frac{4}{9}$.

(2) $2\frac{1}{2} \div 2\frac{3}{4} = \frac{21}{8} \div \frac{49}{20}$. Here, after inverting the divisor, we cancel by 4 and by 7, and obtain $\frac{1}{2}$, or $1\frac{1}{2}$.

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